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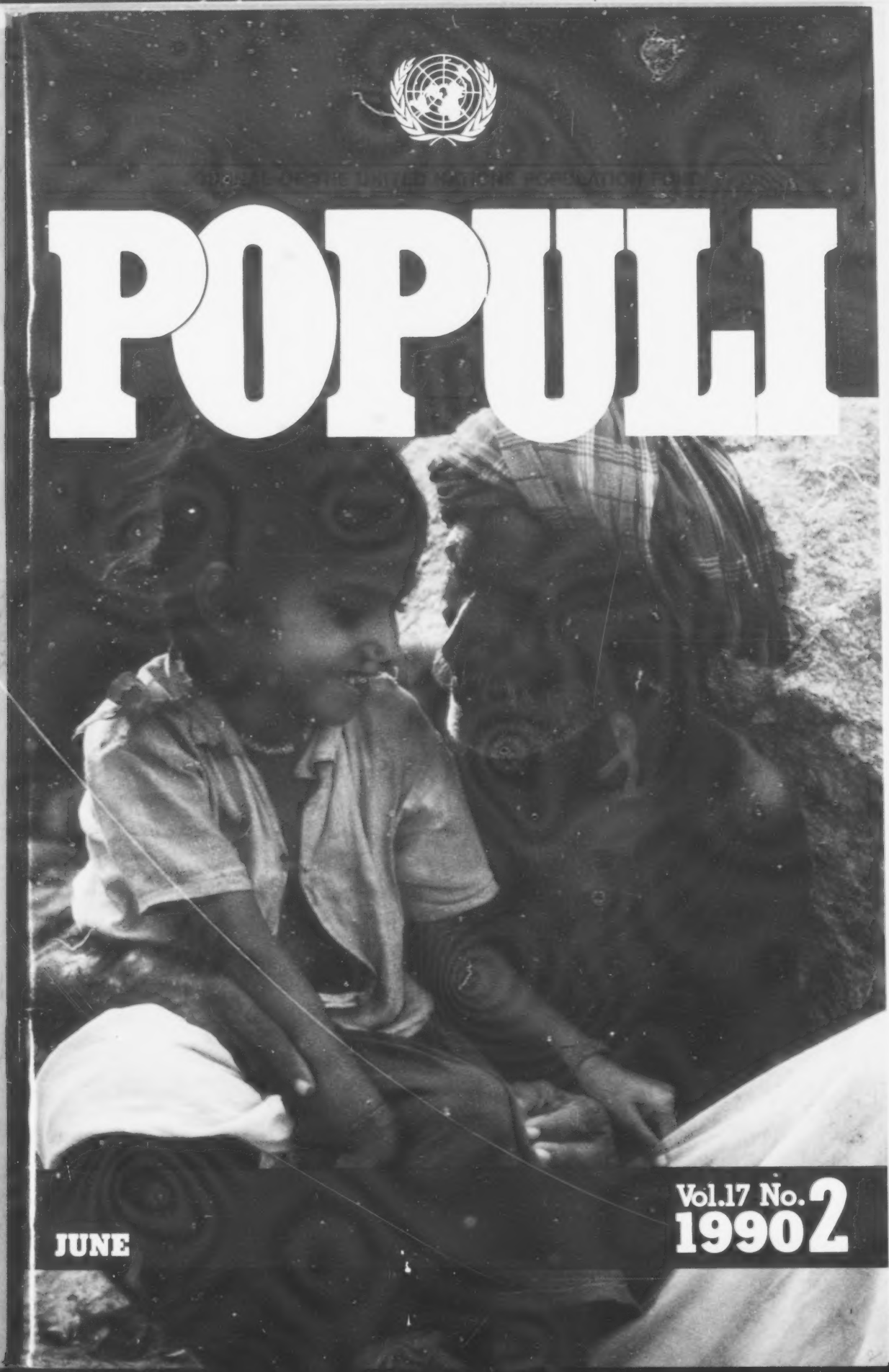

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TO THE READER

The first article in this issue, by UNFPA Executive Director Dr. Nafis Sadik, focuses on the population challenges in the 1990s. The article, which is excerpted from the 1990 state of world population report, points out that progress in reducing the birth rate has been slower than expected; and if the rate of population growth does not slow down, the world population may not stabilize at the expected level of approximately 10.2 billion, but may go up as high as 14 billion. Redressing the balance between population and resources will demand urgent action in the 1990s in three major areas: First, a shift to cleaner technology, energy efficiency and resource conservation; second, a massive effort to alleviate poverty; and third, reductions in overall rates of population growth.

H.R.H. The Duke of Edinburgh delivered a thought-provoking exposition on people and nature at United Nations Headquarters on 30 March 1990. In his statement, which is reproduced in this issue, he argues that the rapid increase in human numbers has become the root cause of the degradation of the natural environment. In his view, the future health and welfare of the planet Earth and of all its living inhabitants directly depend on the control of human numbers and the conservation of nature.

The article by David K. Willis, who recently produced a documentary entitled *Elsy and Irene* for UNFPA, points out that new opportunities are opening up for women in Africa. But they still have a long way to go, particularly in politics and economics. Not just male attitudes have to change; women themselves need to be more aware of the possibilities open to them.

Louis Werner who has been recording oral histories of family planning acceptors in Mexico presents four such histories in his article. He makes the point that family planning evaluators have to pay close attention not only to quantitative measures of a project but also to qualitative data collected in the form of life histories, interviews and focus groups.

Shankar

Jyoti Shankar Singh
Editor-in-Chief

POPULI

Editor-in-chief
Jyoti Shankar Singh

Editor
Hugh O'Haire

The Economic and Social Council (Resolution 1763 [LIV], 18 May 1973) states that one of the aims and purposes of the United Nations Population Fund is "to promote awareness, both in developed and developing countries, of the social, economic and environmental implications and of national and international population problems; of the human rights aspects of family planning; and of possible strategies to deal with them, in accordance with the plans and priorities of each country."

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by Dr. Nafis Sadik

Slower-than-expected progress in reducing birth rates points to catastrophic consequences for human and natural resources, according to the 1990 state of world population report. To ensure sustainable development and improved quality of life, UNFPA's Executive Director calls for a reordering of priorities and action on three fronts: greater energy efficiency and resource conservation; an all-out attack on poverty; and reduced population growth.

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Human exploitation of the environment is destroying natural systems and putting whole species at risk, according to the International President of the World Wide Fund for Nature. Unchecked population growth would have consequences "more devastating than any nuclear holocaust."

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Family planning evaluators are finding that qualitative measures, including oral histories of patients, can be informative guides in determining the effectiveness of family planning programmes. Excerpts from the testimonies of four clients at a rural Mexican clinic are included.

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The Decade

by Dr. Nafis Sadik

Just a few years ago, in 1984, it seemed as if the rate of population growth was slowing everywhere except in Africa and parts of South Asia. The world's population seemed set to stabilize around 10.2 billion towards the end of the next century.

Today, the situation looks less promising. Progress in reducing birth rates has been slower than expected. According to the latest United Nations projections, the world has overshot the marker points of the 1984 "most likely" medium projection, and is now on course for an eventual total that will be closer to 11 billion than to 10 billion.

In 15 countries–13 of them in Africa–birth rates actually *rose* between 1960-1965 and 1980-1985. In another 23 the birth rate fell by less than 2 per cent.

If fertility reductions continue to be slower than projected, the mark could be missed yet again. In that case the world could be headed towards an eventual total of up to 14 billion people.

A cause for concern

At present the human race numbers "only" 5.3 billion, of which about a

DR. NAFIS SADIK *is Executive Director, UNFPA.*

CARLOS REYES

990s: of Decision

billion live in poverty. Can the earth meet even modest aspirations for the "bottom billion", let alone those of the better-off and their descendants, without irreparable damage to its life-support systems?

Already our impact has been sufficient to degrade the soils of millions of hectares, to threaten the rain forests and the thousands of species they harbour, to thin the ozone layer, and to initiate a global warming whose full consequences cannot yet be calculated. The impact has greatly increased since 1950.

Currently, the "top billion" people—those in industrialized countries—are responsible for using by far the largest share of resources and creating the largest amount of waste. These are the people and the countries overwhelmingly responsible for damage to the ozone layer and acidification, as well as for roughly two thirds of global warming.

However, in developing countries the combination of poverty and population growth among the "bottom billion" is damaging the environment in several of the most sensitive areas, notably deforestation and land degradation. Deforestation is a prime source of carbon

World population is growing faster than ever—at a rate of three people per second, or a quarter of a million people every day. The most rapid growth is in developing countries. The question is: Will the earth's already damaged environment be able to sustain such numbers into the 1990s and beyond?

At present, the human race numbers 5.3 billion, of which about a billion live in poverty. Can the earth meet even modest aspirations for the "bottom billion", let alone those of the better-off and their descendants, without irreparable damage to its life-support systems?

dioxide, one of the principal "greenhouse gases" responsible for global warming. Rice paddies and domestic cattle – food suppliers for 2 billion people in developing countries – are also major producers of methane, another of the greenhouse gases.

Developing countries are also doing their best to increase their share of industrial production and consumption. Their share of industrial pollution is rising, and will continue to rise.

Developed or developing, the more people the more pollution. At any level of development larger numbers consume more resources and produce more waste.

A case for change

Redressing the balance demands action in three major areas:

- First, a shift to cleaner technologies, energy efficiency and resource conservation by all countries, but especially the richer quarter of the world's population;
- Second, a direct and all-out attack on poverty itself;
- Third, reductions in overall rates of population growth; *reducing population growth, especially in the countries with the highest rates of growth, will be a crucial part of any strategy of sustainable development.*

The quality of human life is inseparable from the quality of the environment. It is increasingly clear that both are inseparable from the question of human numbers and concentrations. One of the clearest lessons of the last two decades of work in population is that investments in human resource development – for example, improvements in women's status, access to education, health and the means of family planning – not only improve the quality of life, but are also the best and quickest way to reduce population growth rates. By opening up options in the present, they open up options for the future.

Investment in human resources provides a firm base for rapid economic development, and could have a significant impact on the environmental crisis. It is essential for global security. But in the past it has often commanded a lower priority than industry, agriculture, or military expenditure.

It is time for a new scale of priorities. There is no other sphere of development where investment can make such a large contribution both to the options and to the quality of life, both in the present and in the future.

A diverse picture

The regional demographic picture has become very diverse. Latin America is currently growing at 2.1 per cent a year – but that average encompasses Uruguay, where the growth rate is less than 1 per cent, the Caribbean, growing at 1.45 per cent a year, Central America, growing at 2.3 per cent and, at the other end of the scale Paraguay, where growth is over 3 per cent. The region's total

population is projected to expand from 448 million now to 760 million in 2025.

Similar diversity can be found in Asia. While East Asia's annual population growth rate has fallen to the low level of 1.3 per cent, and South-East Asia's has been tumbling to its current level of around 1.9 per cent, South Asia is still growing at 2.3 per cent a year. In absolute terms, South Asia is currently more or less the same size as East Asia at just over 1,200 million. But faster growth will take it to 2,174 million in 2025 compared to 1,600 million in East Asia. Western Asia, at 2.7 per cent, has the fastest population growth of any region in the world outside Africa.

Africa can expect the most explosive growth. Only during the 1990s will the continent reach its fastest growth rates of around 3 per cent a year—the fastest rate in human history for an entire region. The annual additions to African numbers, already causing problems at their current level of 10 million, are not expected to peak until 20 years from now, when they may be running at 15 million. The total population is projected to grow from 648 million now to 1,581 million by 2025.

Kenya has a population of 25 million, for example; the FAO estimates that even with European farming methods, the country could feed a maximum of 60 million people, and then only if every square metre of cultivable land were used for food crops. That level is likely to be reached before 2025, unless current trends can be corrected.

Because of the world's skewed growth patterns, the balance of numbers will shift radically. In 1950 Europe and North America constituted 22 per cent of the world's population. In 2025 they will make up less than 9 per cent. Africa, only 9 per cent of the world population in 1950, will account for just under a fifth of the 2025 total. India will overtake China as the world's most populous country by the year 2030.

Looking even further forward, towards the end of the twenty-first century, a number of countries seem set to face severe problems if populations grow as projected. Nigeria could have some 500 million citizens—as many as the whole of Africa around 1982. This would represent over 10 people for every hectare of arable land. Modern France, with better soils and less erosion, has only three people per hectare. Bangladesh's 116 million inhabitants would grow to 324 million, with density on its arable land more than twice as high as the Netherlands today. This does not take into account any land that may be lost to sea-level rises caused by global warming. Nepal and Haiti, both steep and mountainous countries, could both have more people per hectare of potential farmland than the Netherlands today. It should be emphasized that these are not the most pessimistic projections. On the contrary, they assume steadily declining fertility during most of the next hundred years.

The catastrophe threshold

If the pattern of the past is repeated over the next two or three decades, the *proportion* of the human race in poverty will be reduced. The total *numbers* of the poor, illiterate, malnourished and homeless will continue to rise. The quality of the environment will continue to fall. Greenhouse gases will accumulate, and the atmosphere will become steadily warmer. That in itself is worrying enough.

But there is no guarantee that even this pattern of slow deterioration can be maintained. At some point in the not too distant future, the changes may cross a threshold into catastrophe.

It no longer seems likely that we will run out of minerals or sources of energy. Known reserves of most minerals have increased, not declined, with time and use. Exploration and new technology have opened up new sources. In the few cases where scarcity has become a factor, higher prices have encouraged development of cheaper substitutes, higher efficiency, and recycling.

The world also surmounted a food crisis in the 1970s when the Green Revolution boosted crop yields. As good farmland became scarcer, rising yields compensated in most areas.

But in the last decade of the millennium, the human race appears to be

pushing against a new and more intractable set of constraints. These are set not so much by the availability of resources, but by the impact of their use on the environment.

Population growth and movement increase that impact.

The equation has three components. First, lifestyles, incomes and social organization determine levels of consumption. Second, the technologies in use determine the extent to which human activities damage, or sustain, the environment, and the amount of waste associated with any level of consumption. These two factors determine impact *per person*. The third factor, population, determines how many persons there are. It is the multiplier that fixes the *total* impact.

Inequality sometimes enters as a fourth factor, for example, when most land is in large holdings and the poor are forced into artificially small or

WARMING—THE CAUSES

So far the major responsibility for the production of "greenhouse gases" lies with the industrialized countries. They account for five sixths of world chlorofluorocarbon use and three quarters of fossil fuel use. Developed world residents each add around 3.2 tonnes of carbon each year to the atmosphere, almost four times the amount added by their developing world counterparts. Thus, population growth in industrialized countries has a disproportionate impact.

But the parameters are changing. Emissions of greenhouse gases from developing countries have been growing:

- Annual carbon dioxide output from deforestation almost trebled between 1950 and 1980-1985;
- Emissions from industrial sources rose by almost 16 times;
- Energy consumption grew at 4 per cent per year over the years 1980-1986—10 times faster than in industrialized countries.

Over the past 35 years per capita carbon dioxide emissions from developing countries have grown at 2.4 per cent each year. As incomes grow, lifestyles and technologies will come to resemble those of Europe, North America or Japan, as they already do in more prosperous urban areas. There will be increases in car ownership. Since 1950 the human population has doubled—but the car population has increased by seven times. The world car fleet is projected to grow from its present 400 million to 700 million over the next 20 years—twice as fast as the human population. Much of that growth will occur in the developing countries, which currently own only 12 per cent of the world car fleet. South Korea alone puts 600,000 additional cars on its roads every year.

There will be an increase in *per capita* emissions from developing countries. The effect of population growth will translate this into an even greater rise in *total* emissions. If past trends continue, developing countries will be emitting 16.6 billion tonnes of carbon annually by 2025—over four times as much as developed countries today. Assuming the industrialized countries manage to stabilize their emissions per person at current levels, the total output per year would be 21 billion tonnes—three times the present level.

The risks of global warming reaching catastrophic proportions would be high. We know from earth history that the world climate does not always change smoothly. Sometimes, when certain thresholds are passed, feedback effects occur which accelerate change and bring on periods of unusual cold or warmth. Excessive global warming could cross such a threshold and trigger revolutionary changes which could threaten most or all of life on earth. □

Degradation of the soils and forests of developing countries, and global warming currently pose the greatest threat to human welfare and survival. Population growth plays a key role in each.

marginal areas. Poverty is involved when it prevents the adoption of more costly new technologies that could halt or slow environmental degradation.

Population is always part of the equation. For any given type of technology, for any given level of consumption or waste, for any given level of poverty or inequality, the more people there are, the greater is the impact on the environment.

Two areas of impact currently pose the greatest threat to human welfare and survival: Degradation of the soils and forests of developing countries, and global warming. Population growth plays a key role in each.

Responses

Reduction of greenhouse gas emissions constitutes probably the greatest challenge ever posed to the international community. It will require action on all three elements of our equation: Changes in consumption levels through increased efficiency and actual restrictions in some fields; changes in the technologies used; and efforts to slow population growth rates.

Technological substitutes exist for the chlorofluorocarbons. The 1987 Montreal Protocol agreed on a reduction of CFC emissions by northern countries. But because developing countries at present use very little, allowance was made for them to increase their per capita use. This loophole would allow a 70 per cent increase in CFC emissions possible by 2040. The Chinese Government alone has declared its ambition that there should be a refrigerator in every home by 2000. Most of those fridges are likely to be produced using old CFC-reliant technology. Even in a field where technological solutions are available, levels of population growth will make an impact.

There are no technological solutions in sight for methane emissions from irrigated fields and livestock. They have both expanded in response to growing rural populations, and to meet expanding world demands for cereals and meat. The irrigated area has grown by about 1.9 per cent a year since 1970, slightly faster than world population. Cattle numbers have grown only about half as fast, averaging 0.9 per cent a year. In 1987 there was one head of cattle for every four people in the world. Livestock and irrigation will both continue to expand in line with populations in developing countries. Reducing population growth is the only viable strategy to reduce the growth in methane emissions from these sources.

Carbon dioxide emissions will be hardest to bring under control. If the atmospheric concentration of carbon dioxide is to be stabilized, cuts of 50 to 80 per cent in emissions may be required by the middle of the next century. These will be difficult to achieve even with the most concentrated efforts. Four major lines of action will produce the greatest impact, especially if they are pursued in parallel.

First, improved efficiency in energy use is required. This can pay for itself in savings—but to encourage the investment needed, the price of fuels that produce carbon dioxide emissions may have to rise considerably. Some form of tax, geared to the carbon emissions of dif-

ferent fuels, will probably be necessary to encourage economy. The proceeds could be used to finance investment in the four strategies outlined here.

Second, there must be a shift from fossil fuels, which currently account for 78 per cent of the world's energy use, to renewable sources such as wind, geothermal and solar thermal.

the overall level of environmental damage.

The differences will reach significant levels quite quickly: The growth rate in developing countries in 2000 under the United Nations "low" projection, for example, would be almost 0.5 per cent a year below the "high projection". By 2025 it would be less than half the high rate,

Lower future populations are not a goal in themselves, but a means to a far more important end: Improving the lives of present and future generations.

Third, halting deforestation could cut carbon emissions by 25 per cent. This will involve a change in forest land tenure – in relevant cases restoring ownership to the aboriginal peoples who made sustainable use of the forest – and a removal of all those incentives that encourage settlers to clear forest, or loggers and ranchers to exploit them without sustainable management. This strategy will give further impetus to calls for land reform, and will provide alternatives to forest clearance to growing numbers of small farmers.

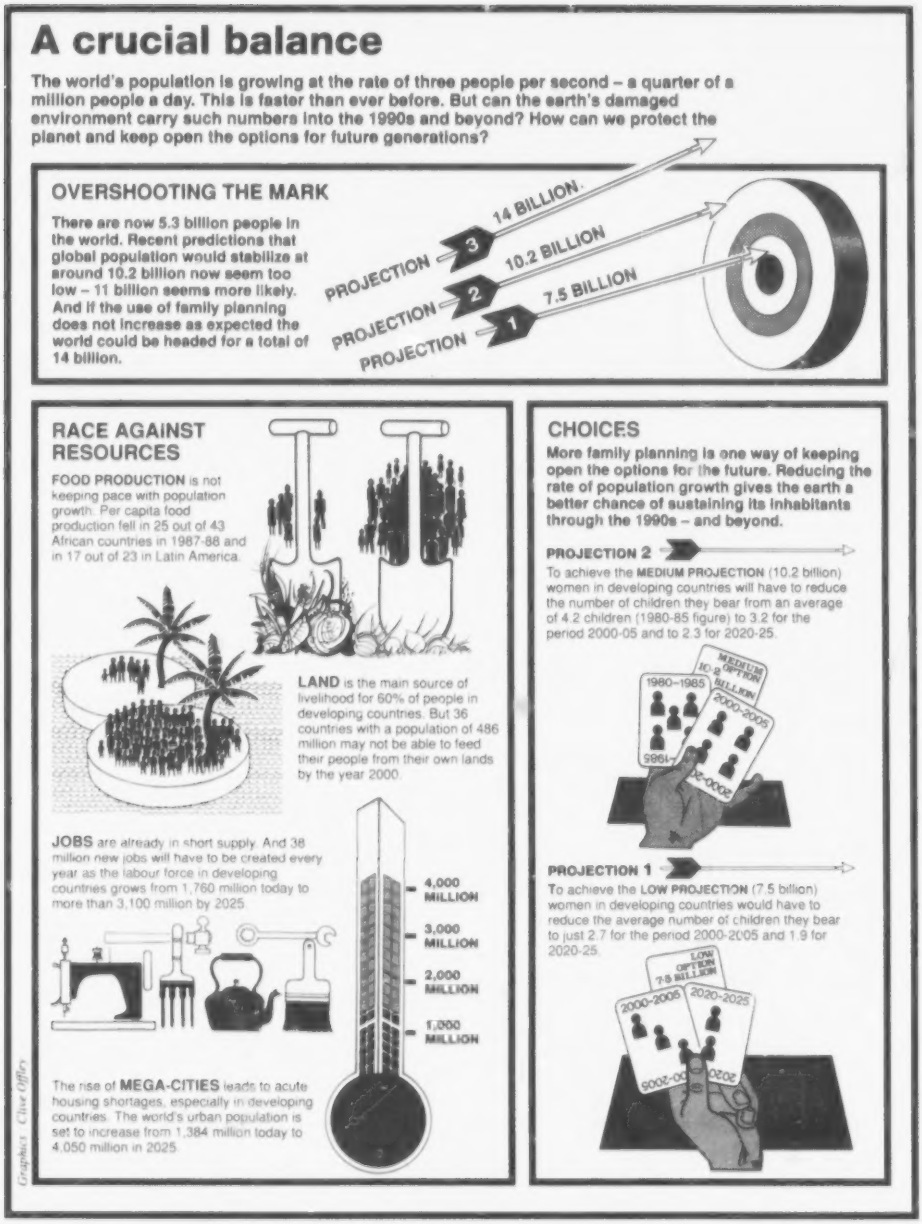
Fourth, a slowing in population growth will help to reduce deforestation, of which it is a major cause. And it will make a very considerable contribution of its own: supposing emissions of carbon from developing countries can be kept as low as 1 tonne per capita per year by 2025 and the United Nations low population projection can be achieved, world population would be 1.64 billion lower than the high projection. This would have as much impact on carbon dioxide emissions as reducing deforestation by 97 per cent.

Reducing the rate of population growth will help extend the options for future generations. It will be easier to provide higher quality and universal education, health care, shelter and an adequate diet; to invest in employment and economic development; and to limit over 0.8 per cent a year slower.

The difference in total numbers would at first be small, but would build up over time. If the low projection (7.6 billion) could be reached, it would mean 876 million fewer people by 2025 than the medium projection, and 1,833 million less than the high.

This is important for social services, housing, employment and the other development parameters. But the ultimate parameter is the environment, where the total numbers consuming or polluting are what count. A billion people less or more would make a significant difference, for example, to greenhouse gas emissions. For any given level of *per capita* emissions 35 years from now, the low projection would involve total emissions of 11 per cent less than the medium projection and 24 per cent less than the high.

If there is a limit to the total amount of greenhouse gases that the human race can safely emit each year, sustainable *per capita* emission levels will vary considerably depending on the size of world population. The difference in sustainable per capita levels between high and low projections in 2025 is 24 per cent. Slower population growth would provide a "time cushion" – a period in which to find cleaner technologies or adjust to lower emission levels per capita.


A crucial balance
The world's population is growing at the rate of three people per second – a quarter of a million people a day. This is faster than ever before. But can the earth's damaged environment carry such numbers into the 1990s and beyond? How can we protect the planet and keep open the options for future generations?
OVERSHOOTING THE MARK
There are now 5.3 billion people in the world. Recent predictions that global population would stabilize at around 10.2 billion now seem too low – 11 billion seems more likely. And if the use of family planning does not increase as expected the world could be headed for a total of 14 billion.
PROJECTION 3
14 BILLION
PROJECTION 2
10.2 BILLION
PROJECTION 1
7.5 BILLION
RACE AGAINST RESOURCES
FOOD PRODUCTION is not keeping pace with population growth. Per capita food production fell in 25 out of 43 African countries in 1987-88 and in 17 out of 23 in Latin America.
LAND is the main source of livelihood for 60% of people in developing countries. But 36 countries with a population of 486 million may not be able to feed their people from their own lands by the year 2000.
JOBS are already in short supply. And 38 million new jobs will have to be created every year as the labour force in developing countries grows from 1,760 million today to more than 3,100 million by 2025.
4,000 MILLION
3,000 MILLION
2,000 MILLION
1,000 MILLION
The rise of MEGA-CITIES leads to acute housing shortages, especially in developing countries. The world's urban population is set to increase from 1,384 million today to 4,050 million in 2025.
Graphics: Clive Offley
CHOICES
More family planning is one way of keeping open the options for the future. Reducing the rate of population growth gives the earth a better chance of sustaining its inhabitants through the 1990s – and beyond.
PROJECTION 2
To achieve the MEDIUM PROJECTION (10.2 billion) women in developing countries will have to reduce the number of children they bear from an average of 4.2 children (1980-85 figure) to 3.2 for the period 2000-05 and to 2.3 for 2020-25.
1980–1985
2000–2005
PROJECTION 1
To achieve the LOW PROJECTION (7.5 billion) women in developing countries would have to reduce the average number of children they bear to just 2.7 for the period 2000-2005 and 1.9 for 2020-25.
2000-2005
2020-2025

It seems likely that for the oceans, too, there may be limits to the total amount of pollutants that can safely be absorbed. If so, a further range of options will be affected by eventual population totals – for example, the amounts of fertilizer and pesticide that can be spread on the land (and eventually reach the oceans) each year. Bigger populations will need more food and more fertilizer and pesticide – and will reach the total sustainable level more quickly. The safe limit will be reached more slowly if total populations are lower.

Similarly, the land required to provide housing, roads and so on for 7.6 billion people in 2025 would be 24 per cent less than for 9.42 billion. The land saved could be left for leisure or wilderness, to the benefit of wildlife and of future generations.

Lower future populations are not a goal

in themselves, but a means to a far more important end—improving the lives of present and future generations. The lower the eventual population total, the more freedom of choice will be open to our children and grandchildren.

The higher the total, the fewer the options. And the longer it is before decisive action is taken, the more the options close up.

How feasible are the lower population projections? The *medium* projection represents what appears at present to be the most probable outcome. But even this requires sustained progress, with the increase in effort which that implies. It involves cutting the total fertility rate in developing countries from an average of 4.2 children per woman in 1980-1985 to 3.2 by 2000-2005 and 2.3 by 2020-2025.

For the low projection the fertility rate would have to drop faster, to 2.7 by 2000-2005 and 1.9 by 2020-2025, a decline of 2.2 children per woman over a period of 35 years. Such a target seems ambitious, but many developing countries have achieved this sort of decline. The best performers such as Cuba, China or the Republic of Korea have achieved as much in less than half that time.

What needs to be done?

The answer is surprising, and heartening. Immediate action to widen options and improve the quality of life, especially for women, will do much to secure population goals. It will also widen the options and improve the quality of life of future generations.

Extending women's options—from fate to free choice

Life in traditional societies is governed by necessity. There is little room for individual decision.

Women's horizons in particular are narrowed by the daily need for food, fuel and water, by work at home and in the fields. Pregnancy and childbirth are part of a cycle ordained by custom and hallowed by time.

Traditional life is changing fast. The most valuable aspects of development increase individual ability to respond to new challenges, widening the range of effective individual choice. Advances in women's status and rights, and especially education, give them wider choices and horizons. Better access to health care and family planning brings family health under greater personal control.

Women's status

Options in the use of time are far more restricted for women than for men. Studies from almost all types of societies show women working a "double day"—in the home and outside it. In developing countries "housework" is widely defined to include a number of burdensome chores usually linked with food preparation. Three tasks dominate a woman's day: Gathering fuel, fetching water and preparing staple foods. Each of these can take an hour or more. As fuel and water become harder to find, the load grows heavier.

It has been suggested that women's labour burden—heaviest of all in Africa, where women do more than 70 per cent of the food production as well—may encourage women to have more children to help lighten the load. Certainly it pushes families to withdraw girls from school prematurely so they can help at home. The mother's burden becomes the daughter's sacrifice—a sacrifice much less frequently demanded of boys.

No fundamental change in favour of women is possible without a massive change in male attitudes. This is more than a philosophical point. Men control the legal, administrative and financial systems which effectively deny a vast number of women the right to own land, inherit property, establish credit, enter the professions or rise in business.

On the most basic level, various sim-

ple improvements can speed women's routine tasks. Effective hand mills save time preparing food; wells and standpipes bring clean water closer to home; cheap and efficient woodstoves and fuelwood trees close to home and fields will both lighten women's load and protect the environment. But even these small advances require the consent of the local leaders who set development

SANDRA NECCHI

ELIZABETH OBADINA

MAGGIE MURRAY/FORMAT

More women are breaking with tradition in family planning and child-rearing. Brazilian Marilene de Freitas (above left) chose not only to have just two children but also to raise them as a single mother. Euphemia Okonkwo (above right) of Nigeria decided 3 children was enough, although she comes from a culture where 10 to 12 children is the norm (below) and her religion forbids contraception.

priorities. Here, too, it will be necessary to co-opt men before improving the rights and status of women move to the top of the list.

Education—widening the horizons

Often education is the means to a new vision of options. It encourages a sense of control over personal destiny and the possibility of choices beyond accepted tradition. For women it offers a view of sources of status beyond childbearing. Because of this, education—especially for girls—has a strong impact on the health of the family and on its chosen size.

Women assume the burden of child care along with their other tasks. They are in charge of nutrition, hygiene, food and water. As a result, the effect of women's education on child survival is very marked. In Kenya, for example, mothers with no education lose 109 children under 5 for every 1,000 born. Women who have completed their primary schooling lose only 72, while those with a secondary education lose 64. In Indonesia the education effect is even more marked. Children of mothers with no schooling are more than three times more likely to die before their fifth birthday than children of mothers with a secondary education.

Education's impact on fertility and use of family planning is equally strong. Women with seven years of education tend to marry an average of almost four years later than those who have had none. The level of contraceptive use among these educated women is very much higher—two-and-a-half times on average, almost four times higher in Africa.

The first three years of education do not make much difference. Indeed, in Africa, women with one to three years' schooling have slightly *higher* fertility than those who never attended school. But four to six years' education lower fertility by between 5 per cent in Asia and Africa and 15 per cent in Latin America, as compared to absence of schooling. The greatest effect occurs when women have seven years or more of education. These women have, on average, 2.2 fewer children each than those who have had no education at all. The husband's education makes much less difference. Families where the husband has had seven years in school have only 1.3 children fewer than those where he has had no schooling.

No fundamental change in favour of women is possible without a massive change in male attitudes.

Yet there remains a great deal to be done in female education to bring it even level with male. Women make up almost two thirds of the illiterate adults in developing countries. In 1985, only 51 per cent of women could read, against 72 per cent of men.

In 1986 the enrolment of girls in secondary education—the level that really has an impact on fertility—was highest in Latin America. Yet even there it was only 53 per cent. In the Arab States, the rate was 39 per cent; in Asia, 33 per cent; and in Africa, a mere 21 per cent. Even at primary level, female enrolment is lower than male. At secondary level the differentials widen—in Africa the female secondary enrolment rate is only 55 per cent of the male. It is 70 per cent in Asia and the Arab countries. In Latin America the roles are reversed, and more girls are enrolled than boys.

Primary education for all by the end

of the decade is a worthwhile target and a necessary first step. But there should also be efforts to improve the enrolment of girls, especially at secondary level where the pressures on girls to drop out become much stronger than for boys, as they are married off, kept at home to help with housework, or become pregnant.

Double-shift schooling—taking half the school's pupils in an extended morning, and half in a longer afternoon—might help keep girls in school by leaving half the day free in which they can help their mothers. More single sex schools and female teachers may be necessary in areas where girls are segregated from males. Population education and family planning services in areas where teen-age pregnancy is already a problem may also help to reduce female dropout rates.

The importance of literacy programmes for adult women goes far beyond reading and writing. Literacy is essential for the assertion of legal rights. It also allows access to practical information on such matters as preventive health care and family planning, which are often part of the programmes themselves.

The association of female literacy with lower fertility is very striking. In India the States with the highest female literacy are also those with the lowest fertility. States with the lowest female literacy have the highest fertility rates.

Improving health

Sustained improvements in health care give people a sense of control over their lives. With adequate health care, parents develop the sense that they have some choice over their children's survival. Parents' feeling of control over their lives is extended by modern family planning. They can protect the health of both mother and child by preventing or postponing childbirth. Preventive measures that the family itself can apply assist the process.

When women want to plan their pregnancies, but cannot find affordable effective services, the result may be higher rates of abortion or reliance on whatever family planning methods are available, even though they may be inappropriate. Birth rates will fall, but the health of mothers and children will suffer, too.

Family planning: The choice factor

The option of controlling family size always exists. Traditional methods such as abstinence or withdrawal are universally known, and are still widely practised. But practices which favour later marriage, child spacing and an upper limit to parenthood have often been lost along with the complex structure of traditional society and economy.

Wide availability of more effective and more convenient modern methods speeds their use, as in China, Mexico, the Republic of Korea or Thailand. Where other conditions—women's education, health and status—were right, the speed of adoption and of fertility decline has been astonishing.

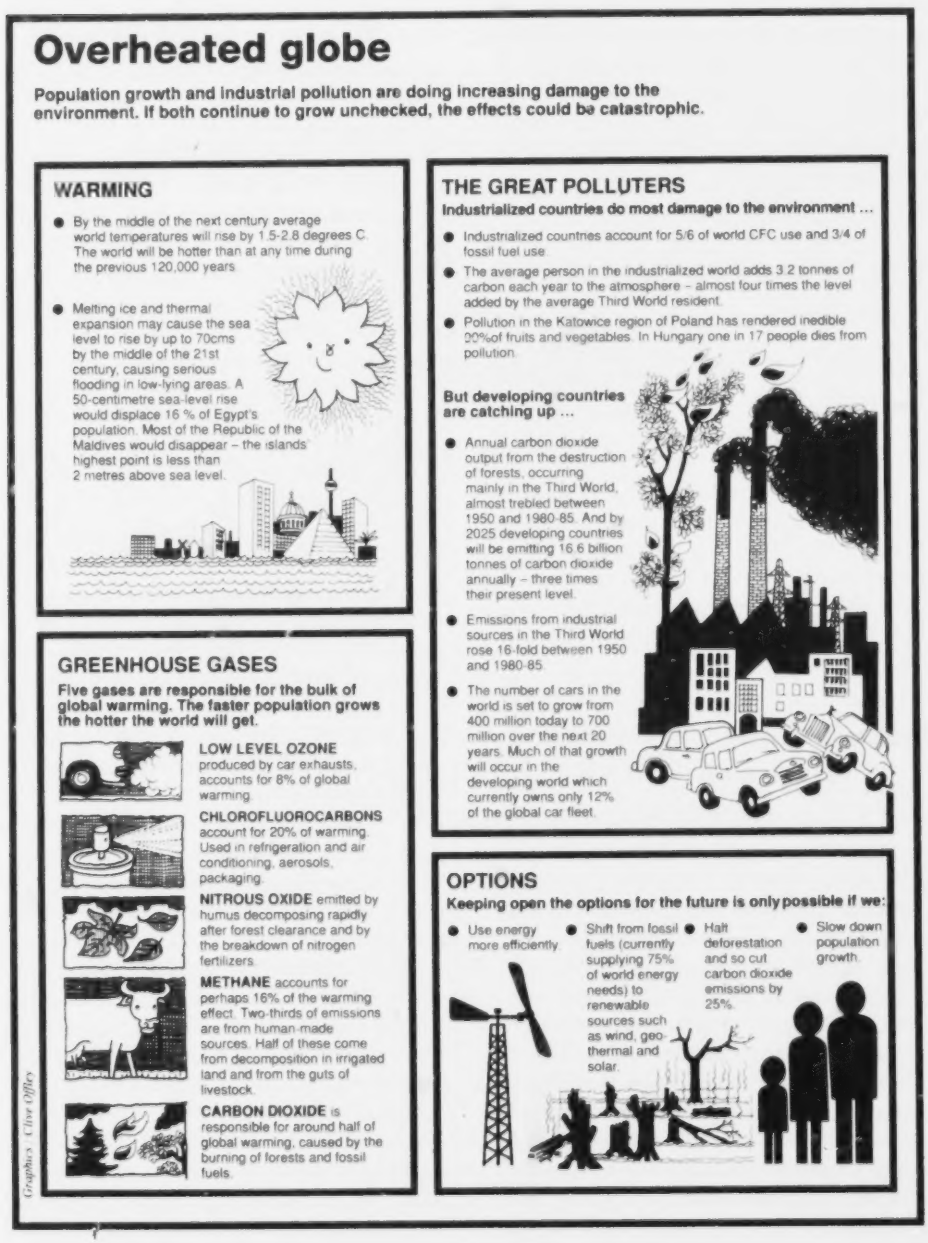
UNFPA recently conducted a review of 20 years of experience to spotlight "success factors" in family planning programmes. Wider options are crucial here, too—in the sense of access to services so choice whether to use them or not can be exercised. But providing a range of methods is also important so that the couple can choose which one suits them best.

The design of programmes makes an enormous difference to success rates. This is most dramatically illustrated by local and pilot programmes that have achieved excellent results in countries with disappointing overall performance. In Bangladesh, for example, the Matlab Project, using village women to supply pills in home visits, achieved a contraceptive prevalence rate of 45 per cent, more than double the national rate. The Chogoria Hospital Programme in the rural Meru district of Kenya used a network of village-built health clinics, trained birth attendants and volunteer

family health workers, and reached a rate of contraceptive use of 48 per cent in 1985–three times the level for the country as a whole.

Political support

Political support from the highest levels in the State is essential in making family planning both widely available and widely used. Political backing helps to legitimize family planning, to desensitize it and place it in the forum of public debate. It helps win over traditional leaders or counter their hostility. And it helps to ensure that funding and staffing for family planning are stable and protected against damaging budget cuts or the competing demands of rival departments. A survey of the connection between political support and the


Overheated globe
Population growth and industrial pollution are doing increasing damage to the environment. If both continue to grow unchecked, the effects could be catastrophic.
WARMING
By the middle of the next century average world temperatures will rise by 1.5-2.8 degrees C. The world will be hotter than at any time during the previous 120,000 years.
Melting ice and thermal expansion may cause the sea level to rise by up to 70cms by the middle of the 21st century, causing serious flooding in low-lying areas. A 50-centimetre sea-level rise would displace 16 % of Egypt's population. Most of the Republic of the Maldives would disappear – the islands' highest point is less than 2 metres above sea level.
GREENHOUSE GASES
Five gases are responsible for the bulk of global warming. The faster population grows the hotter the world will get.
LOW LEVEL OZONE produced by car exhausts, accounts for 8% of global warming.
CHLOROFLUOROCARBONS account for 20% of warming. Used in refrigeration and air conditioning, aerosols, packaging.
NITROUS OXIDE emitted by humus decomposing rapidly after forest clearance and by the breakdown of nitrogen fertilizers.
METHANE accounts for perhaps 16% of the warming effect. Two-thirds of emissions are from human-made sources. Half of these come from decomposition in irrigated land and from the guts of livestock.
CARBON DIOXIDE is responsible for around half of global warming, caused by the burning of forests and fossil fuels.
Graphics Clive Offley
THE GREAT POLLUTERS
Industrialized countries do most damage to the environment ...
Industrialized countries account for 5/6 of world CFC use and 3/4 of fossil fuel use.
The average person in the industrialized world adds 3.2 tonnes of carbon each year to the atmosphere – almost four times the level added by the average Third World resident.
Pollution in the Katowice region of Poland has rendered inedible 20%of fruits and vegetables. In Hungary one in 17 people dies from pollution.
But developing countries are catching up ...
Annual carbon dioxide output from the destruction of forests, occurring mainly in the Third World, almost trebled between 1950 and 1980-85. And by 2025 developing countries will be emitting 16.6 billion tonnes of carbon dioxide annually – three times their present level.
Emissions from industrial sources in the Third World rose 16-fold between 1950 and 1980-85.
The number of cars in the world is set to grow from 400 million today to 700 million over the next 20 years. Much of that growth will occur in the developing world which currently owns only 12% of the global car fleet.
OPTIONS
Keeping open the options for the future is only possible if we:
Use energy more efficiently.
Shift from fossil fuels (currently supplying 75% of world energy needs) to renewable sources such as wind, geothermal and solar.
Halt deforestation and so cut carbon dioxide emissions by 25%.
Slow down population growth.

Family planning programmes are strongest where there are official policies of fertility reduction, or where leaders have made strong statements of support, as in Indonesia, Mexico, the Republic of Korea, Thailand and Zimbabwe.

strength of family planning programmes shows that programmes are strongest where there are official policies of fertility reduction, or where leaders have made strong statements of support, as in Indonesia, Mexico, the Republic of Korea, Thailand and Zimbabwe.

Of course political support from national leaders cannot be taken for granted. In some parts of the world, leaders themselves may need convincing that family planning is a practical necessity, not a political liability. In such cases research on population trends and their implications for resources, environment, housing, and other government services has often helped to sway them. The United Nations–backed African Census Programme in the 1970s, UNFPA's first venture into funding programmes in Africa, demonstrated to many governments for the first time the true dimensions of their population situation. Support for population programmes in Africa has been growing ever since.

Community support

Support must extend far beyond the national leadership before programmes take off.

It may be necessary to involve a wide range of religious and traditional leaders in discussions before introducing population policies and programmes on a wide scale. If these leaders feel that they have been sidestepped, their opposition may become entrenched. If they are consulted and involved, on the other hand, they may often turn into allies. In Indonesia, for example, Muslim religious leaders were consulted at national and local levels and not only withdrew their opposition, but have added their voices to the government's call for family planning.

Community involvement at local level is also essential. If a national programme moves in without consultations with local community leaders, it may be perceived as alien and achieve no results. Community groups, NGOs, and women's groups can become involved in programmes as educators and distributors. Programmes start with an advantage when a trusted local institution becomes involved in family planning.

Communities are also one of the best sources of feedback and evaluation. They can help to check whether messages and methods available correspond to needs and are culturally acceptable, and can report on waiting times and staff attitudes.

Meeting existing demand is important. But by itself it will not be enough to raise contraceptive use to the level required to reach the Amsterdam targets. In Africa, for example, an average of 14 per cent of women use contraception. An additional 3 to 9 per cent of women want no more children, but are not using any form of contraception. Meeting the whole of that unmet need would raise contraceptive usage to 17 to 23 per cent of fertile married women. But meeting the United Nations medium population projection implies that by the year 2000 the figure should be 27 per cent.

This is not in itself a high figure, but reaching it calls for efforts across a very wide field, directly by population infor-

mation, communication and education, and also in those key areas that influence people's decisions on family size—health, education and improving women's status.

Better services boost demand

Meeting existing demand with sensitive and varied programmes, backed up with good communication, helps to create new demand. This is demonstrated by a curious relationship between greater acceptance of family planning and unwanted pregnancy—the higher the quality, effectiveness and outreach of family planning services, the higher the proportion of pregnancies that are still unwanted. In countries with very weak programmes or none, only 9 per cent of fertility is unwanted. In countries with strong or moderate family planning programmes, more than 20 per cent of fertility is unwanted. The reason for this paradox is probably that when services are poor, couples accept whatever number of children God or Fate may send them. When services are good, they develop the desire to bring fertility under their own control to suit their own needs and those of their families.

Strong family programmes may in fact help bring about social change by speeding the transition from large families, high infant mortality and short life expectancy to small families and low infant mortality and longer life expectancy.

Human resource development—a new priority

Working on education, women's status, health and family planning separately brings its own benefits and also reduces fertility to some degree.

But all four factors working together reinforce each other and enhance the overall effect. Improvements in women's status, rights and earning power encourage parents to keep their daughters longer at school. Better and more widespread female education improves women's status, mother and child health, and family planning use. Lower fertility and more use of family planning improve child health and survival and sets women free to pursue other goals.

Wider availability of family planning allows a woman freedom to pursue further education or employment. Without the risk of early and frequent pregnancies and childbirth, her family will be more secure and her life richer.

If family planning were universally used to avoid the high-risk pregnancies—before the mother is 18, after the age of 35, spaced closer than 2 to 3 years apart, and with higher numbers of previous pregnancies—it could potentially save 5 million infant lives each year and cut deaths of mothers in childbirth by almost half. It could also slash the number of unwanted pregnancies that end in abortion. The resulting improvement in child survival would further reduce fertility and increase the use of family planning.

Because of these complex interactions, all four initiatives should be seen as integral and inseparable parts of the development of human resources. The countries which have enjoyed the speediest fertility declines have not only had strong family planning programmes, but have also performed well in health and education and women's status generally. The contrast in spending on health and education between these countries, and those in the same region where fertility has declined much more slowly, is very striking. Thailand, for example, spent 5.4 per cent of her GNP on health and education in 1986, against only 2.4 per cent in the Philippines. In the same year Zimbabwe spent 10.2 per cent of GNP, Zaire only 1.2 per cent. Cuba devoted 9.4 per cent of GNP to health and education, Haiti a mere 2.1 per cent.

Past levels of spending on family planning will not be adequate to meet the challenges of the future.

The numbers of women of reproductive age, from around 717 million now to 874 million in the year 2000, will grow. Just

FAMILY PLANNING EFFORT AND THE BIRTH RATE

Family planning programmes can have their own independent effect on the birth rate. Research by Robert Lapham and W. Parker Mauldin has shown that at any given level of social development, the stronger the family planning effort, the greater the decline in the birth rate.

In countries with a high level of socio-economic development, for example, the birth rate decline between 1965 and 1980 in those with a strong family planning programme was three times faster than in those with a very weak programme or no programme.

But, conversely, the level of socio-economic development has its own effect on the birth rate. Among countries with weak programmes, the birth rate fell by 27 per cent in countries with a high level of socio-economic development, but did not fall at all in those with a low level.

Clearly, the greatest impact is achieved when a high level of socio-economic development combines with a strong family planning programme. □

to maintain the present level of contraceptive use, the number of women using family planning would have to rise by 157 million.

But the present level of use will not be high enough. The United Nations medium population projection requires that fertility in developing countries should drop from 3.9 children per woman now to 3.3 by the end of the century. The level of fertility is strongly related to the proportion of women using contraception. It has been estimated that there must be a 10 per cent rise in contraceptive use for every drop of 0.7 in the fertility rate. To keep the world's population at 8.5 billion in 2025, the proportion of couples using contraceptives must rise from 45 per cent in 1983 to 56 per cent or more in the year 2000. In numerical terms this is a steep increase from 326 million to around 535 million.

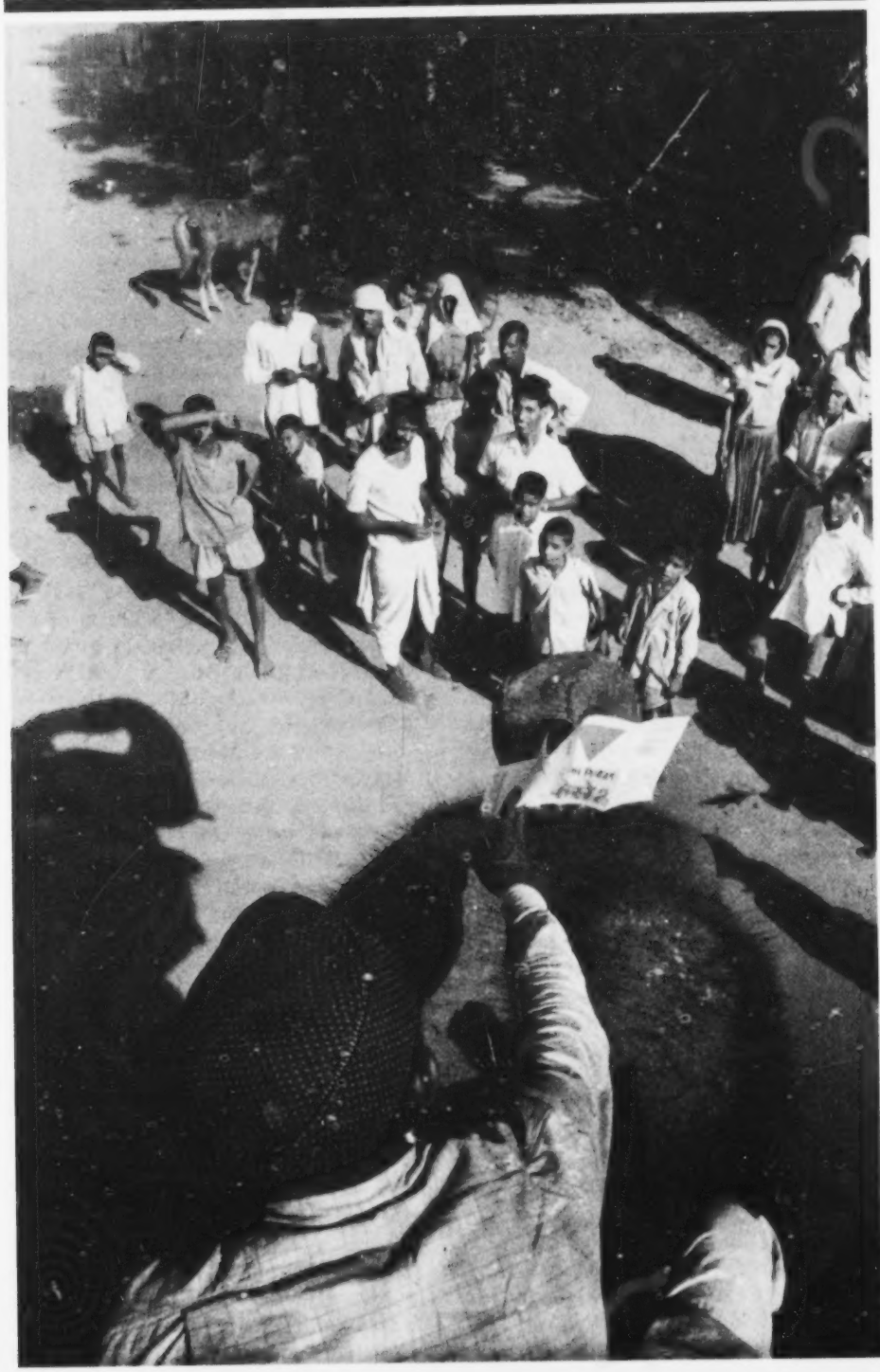
How much would it cost to provide over half a billion couples with contraceptive services? Estimates vary, but most put the figure at $US 5.3 to $US 6.5 billion for family planning services alone. The additional cost of family planning efforts to reach the *low* projection would be quite modest—only an extra $US 365 million per year by 2000.

A whole range of backup activities is also needed, from research and evaluation to population education and communication, and women's programmes. These could cost an extra $US 3.1 to $US 4.6 billion a year by the year 2000.

Total costs would range from $US 8.4 to $US 11.1 billion. The best guess indicates that a minimum of $US 9 billion, at today's prices, would be required—twice the current level. To reach that

To keep the world's population at 8.5 billion in 2025, the proportion of couples using contraceptives must rise from 45 per cent in 1983 to 56 per cent or more in the year 2000.

Getting men to share responsibility for family planning is a challenge. Gimmicks such as having elephants distribute free condoms aren't guaranteed to change male attitudes, but at least they arouse curiosity—a place to start.



MARK EDWARDS

The most valuable aspects of development increase individual ability to respond to new challenges, widening the range of effective choice.

target by the end of the century would require an annual increase of 7 per cent a year.

Changes of this magnitude need lead time to gain momentum. The necessary programme increases will be secured by setting them in motion in the first years of the decade. Funding increases should start immediately.

Health and education

Increased funding will also be needed for health and education.

In the health sphere, WHO has suggested that if health spending in developing countries were increased by only $US 2 per head (a total increase of $US 8 billion), all children could be immunized, drugs provided to cure all cases of diarrhoeal disease, acute respiratory infection, malaria, schistosomiasis and sexually transmitted diseases. An investment of only $US 50 million–the cost of a modern commercial building in New York–could save 2 million lives lost to diarrhoeal diseases each year.

To teach the world's 560 illiterate women to read might cost $US 14 billion. To give primary education to the 106 million out-of-school primary age children projected for the year 2000, at an average cost of $US 25 per pupil, would cost less than $US 3 billion. Costings for this year's World Conference on Education for All suggest that an additional investment of $US 5 per pupil on educational materials–costing $US 1 billion a year globally–could improve the effectiveness of education and produce net savings within a few years. Research in Brazil has indicated that every $US 1 spent on quality improvement saves $US 4 in the cost per graduate of the primary school system.

For Africa, the World Bank has suggested a doubling of spending on human resource development, from the current 4 to 5 per cent of GNP to 10 per cent by the end of the century, with 0.8 per cent earmarked for family planning.

Raising the funds

The total required investment in human resources seems large. But like all sound investments, it shows benefits over time. Countries like the Republic of Korea, Malaysia and Thailand, which have invested heavily in health and education since the 1960s, have attracted foreign investment and produced faster economic growth. Improvements in health, education and family planning reduce population growth and reduce the future cost of schooling and health services.

Whatever the future returns, investment is needed now, and that is not so easy. In recent years the trend in many countries has been retrograde.

The fate of human resource development in developing countries cannot be isolated from the overall financial situation. While the debt burden more than doubled, from $US 610 billion in 1980 to $US 1,319 billion in 1988, net transfers of funds–$US 20 billion in developing countries' favour in 1980–had turned into a net outflow totalling $US 52 billion a year in 1988. The poor countries were financing the rich, and to do so they had to rein back their own levels of consumption and

growth. With much lower debt levels, East and South Asia achieved good growth levels. But in Africa per capita incomes fell by 2.5 per cent a year between 1981 and 1988, and in Latin America by 0.7 per cent a year.

Government spending in many developing countries was cut back.

Spending on social services suffered disproportionately. Cuts here were less likely to cause riots than cuts in government employment or subsidies for food or petrol.

Between 1982 and 1987, for example, developing countries' spending on health and education dropped from 18 per cent of government budgets to 15 per cent. Defence fell far less, from 13.2 per cent to 12.6 per cent. The situation in heavily indebted countries was far worse – in some cases the share of these social services in public spending fell by more than half. Since health and education efforts have a strong impact on lowering fertility, these cutbacks will mean higher fertility than would otherwise have been the case.

The separate fate of family planning spending is not yet clear, but in 5 out of 10 countries for which trend data are available real per capita spending on family planning has fallen in recent years. In practice this means reduced levels of service. Staff vacancies are left unfilled, creating gaps in management or outreach cover. Transport budgets are cut, making supervision difficult. Shortages of supplies of contraceptives develop. Users find they cannot get their next cycle of pills. Not only are they exposed to unwanted pregnancy, but their confidence in the service is undermined.

In Mexico the national health budget was cut by two thirds between 1982 and 1986. The slower progress in family planning registered since 1982 may be related to these cuts. Between 1982 and 1987 the number of users of modern methods rose only a third as fast as between 1976 and 1982.

As a first priority this decline in social spending must be halted. This will mean debt relief measures and, in many cases, increased assistance to insulate human resource investment from budget cuts. There is ample scope for increasing assistance. From Western donors, for example, the 1988 total of $US 44.3 billion represented a mere 0.35 per cent of GNP. On the eve of the Fourth United Nations Development Decade, this was still only half the target share of 0.7 per cent set as far back as 1971, at the start of the Second Decade.

In an era of decreasing superpower tension, military expenditure is another source that could be tapped. The military budgets of the United States and the Soviet Union totalled $US 552 billion in 1986. A 10 per cent cut in the United States arms budget alone would yield $US 28 billion.

Developing countries' own spending priorities must be reordered. Military spending amounted to $US 142.5 billion in 1986 – $US 38 for every man, woman and child – and it has increased faster than spending on health and education.

The way resources are spent is at least as important as the total amount of resources. The human resource budget in developing countries is often highly skewed. Health spending goes disproportionately to curative facilities in large cities. A high share of education spending goes to urban areas and to the tertiary level. A shift in the distribution of government spending, from urban to rural, from curative health care to preventive, from tertiary to primary and secondary education, would produce a much greater impact on general levels of health and education at no extra cost, as well as encourage rural development and slow the flight to the cities.

Improved efficiency has an important contribution to make. Better management, better supervision and tighter management of supplies are needed in all public sector programmes, including health, education and family planning.

Cost-effectiveness is important. In many areas there is some scope for cost recovery. Couples are often willing to pay for contraceptives. Communities all over the Third World have shown themselves willing to make contributions in land, labour, cash and other resources to local schools and clinics.□

PEOPLE AND NATURE

by H.R.H. The Duke of Edinburgh

H.R.H. The Duke of Edinburgh, International President of the World Wide Fund for Nature, delivering the 1990 Rafael M. Salas Memorial Lecture at the United Nations.

BRIAN ALPERT/KEYSTONE PRESS AGENCY

The following is the text of a speech delivered by His Royal Highness The Duke of Edinburgh, International President of the World Wide Fund for Nature, at the United Nations on 30 March 1990. It was the second annual Rafael M. Salas Memorial Lecture, honouring UNFPA's first Executive Director, who died in 1987.

The lecture series was initiated to pay tribute to Mr. Salas for his pioneering work in the field of population. It is underwritten by the Rafael M. Salas Memorial Trust Fund, which also finances scholarships for students from developing countries to study population issues, as well as yearly scholarships at the Rafael M. Salas School of Public Administration, a new school at the University of the Philippines, Mr. Salas's alma mater.

I am delighted to have been invited to give this lecture for three very good reasons. The first is that I have the greatest admiration for Rafael M. Salas. At a time when any discussion about human population numbers and, more particularly, about family planning was virtually a taboo subject, he had the courage and the diplomatic skill to persuade leaders to take the matter seriously. He gave many others the encouragement to follow his example.

The second reason is that it gives me the chance to congratulate the United Nations Population Fund on its fine work on behalf of future generations of people and of all life on earth. Warnings about the possibility of future disasters have never been popular, and consideration for anything beyond immediate political and economic problems has never had a very high priority. If, in addition, even the discussion of the subject is likely to cause offence to some sections of the population, it is only too likely to be ignored, presumably in the hope that it will go away.

The third reason is that as soon as I became involved in the conservation of nature through my connection with the World Wide Fund over 25 years ago, I began to realize that, while the improved chances of survival of the human species reflected great credit on scientists and technologists, the resulting human population explosion had become the root cause of the degradation of the natural environment and responsible for the extinction of wild species of plants and animals. This occasion gives me the opportunity to draw attention to this particular aspect of human population growth.

There can be no doubt that population growth and the conservation of nature are intractable subjects. Both need serious attention and sensible people are quick to appreciate their importance. It must be obvious by now that further population growth in any country is undesirable. The difficulty lies in the fact that those countries with the greatest need to tackle these problems are usually the least well-endowed financially. This means that conservation and population are likely to be relegated to the bottom of the priority list for the allocation of funds. These countries are desperately in need of help, and I believe that both issues need to be tackled urgently, and both need more support from the aid agencies.

Unfortunately, the currently fashionable issue of the environment has tended to overshadow the problems of population and nature. There can be no doubt that the degradation of the environment affects all life, but popular concern for the environment concentrates on the protection of those elements in nature that benefit people, or on which people depend for their comfort and amusement. The conservation of nature, on the other hand, involves the protection of wild species of plants and animals and their natural habitats from human exploitation and disturbance.

Let me just quote a short passage from the Brundtland Report:

> Sustainable development requires that the adverse impacts of human activities on the quality of air, water, and other natural elements are minimized so as to sustain the ecosystem's overall integrity. In essence, sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.

You will notice that the whole

Numbers alone are not that significant. What matters is the size of the population in proportion to the space and resources available. Five or 6 million butterflies in the State of New York would not cause much of a stir, but 640 million elephants in Africa—the same number as the present human population there—would cause some very awkward problems.

emphasis is on human needs and aspirations; nothing about the necessity to ensure the survival of other forms of life that are threatened by economic growth, and developments designed to satisfy human needs and aspirations. That does not mean to say that the conservation of nature is a matter of putting animals and plants ahead of people. It is simply a recognition that we need each other if any life is to survive on earth.

I think I should also make it clear that the conservation of nature is not the same thing as a concern for the welfare of individual animals. Conservation is primarily concerned with the survival of entire species and their habitats. The fate of individual members of a species, however unpleasant, cannot be as important as the survival of the species as a whole.

I do not think that anyone who is prepared to face the facts can still be unaware of what is meant by the human population explosion, or would deny that the number of people alive today has reached the staggering total of nearly 5.3 billion.

Considering that the figure was only 2 billion when I was born, the speed of the explosion becomes only too evident. I see that UNFPA now estimates that the human population is unlikely to level off at less than 14 billion by the year 2100.

This is a frightening figure, but as Rafael M. Salas said; "We have decided to work for people and not numbers."

He was quite right. Numbers alone are not all that significant. What matters is the size of the population in proportion to the space and the resources available. Five or 6 billion butterflies in the State of New York would not cause much of a stir, but 640 million elephants in Africa – the same number as the present human population of Africa – would cause some very awkward problems.

It is incomprehensible to me that anyone can still argue that there is plenty of room for the present and even greater numbers of people on this planet. Yet only recently I read an article in the journal *Economic Affairs* which implied that the growth of the population in India was desirable because it had stimulated agricultural output. This is really putting things back to front.

Even academic economists must be aware that our planet Earth is a ball of fixed size spinning precariously in the vastness of space and that there must be an ultimate limit to the number of human inhabitants it can reasonably support. If the "plenty-of-room" lobby is to prove that it is right, it must show that the human population is not doing any lasting harm to the world's environment or to the other living organisms that share the planet with us and make life possible for us. If, as seems more than likely, it is wrong, the consequences are very serious indeed. Common prudence would therefore suggest that the risk of being wrong was not worth taking.

The trouble is that if it is wrong, there

If the "plenty-of-room" lobby is to prove it is right, it must show that the human population is not doing any lasting harm to the world's environment or to the other living organisms that share the planet with us and make life possible for us.

is no going back. Once it has taken over the last remaining space occupied by the animals and plants, there is really nowhere else for the excess human population to go. Anyone who believes that we can somehow push people out to find a new home on some other planet or some other solar system can only be a science fiction addict. The idea is certainly not realistic as a means of relieving present and anticipated overcrowding.

I believe that we have got to face the fact that more people need more resources and that the more prosperous they are, the more they consume per individual. While increasing numbers of people is the problem for many of the less prosperous countries, the increasing rate of consumption in the richer countries is causing even more serious problems.

All the evidence suggests that the present population can only survive by consuming non-renewable resources at an accelerating rate, and renewable resources, such as tropical timber and sea fish, at a rate much faster than they can naturally regenerate. It is also evident that this process is causing permanent damage to the living skin of the earth. This leads to the inescapable conclusion that we are eating into our capital assets, to the detriment of future generations, and weakening the very systems that make life possible. In other words, apart from advancing towards the point of ultimate limitation on the size of the human population, we are also bringing that point nearer by reducing the capacity of the globe to carry life of any kind.

The remarkable persistence in the belief that there is lots of room and lots of food for an ever-growing human population is marginally understandable if you only look at the apparently empty spaces on the map of the world and assume that people can subsist on food alone. This is a very simplistic assessment. Apart from the evidently undesirable social consequences of human overcrowding in the megacities, it does not take any account of the fact that most people are anxious to improve their standard of living. I think there is a good case for suggesting that the growing materialism and competitiveness is partly due to more people fighting for a share of declining resources.

We are constantly being reminded of the plight of the poor, the hungry, the homeless and the diseased. What does not make the headlines is that even if the proportion of these unfortunate people remains the same in relation to the total population, their number is bound to increase as the size of the population as a whole increases.

Since it is the poor and disadvantaged who are most directly affected by the degradation of the natural environment, as resources become more scarce and the quality of the environment declines still further, even more people are bound to become poor and disadvantaged. The best hope of limiting the increase in the number of such people would be if the world population could be stabilized.

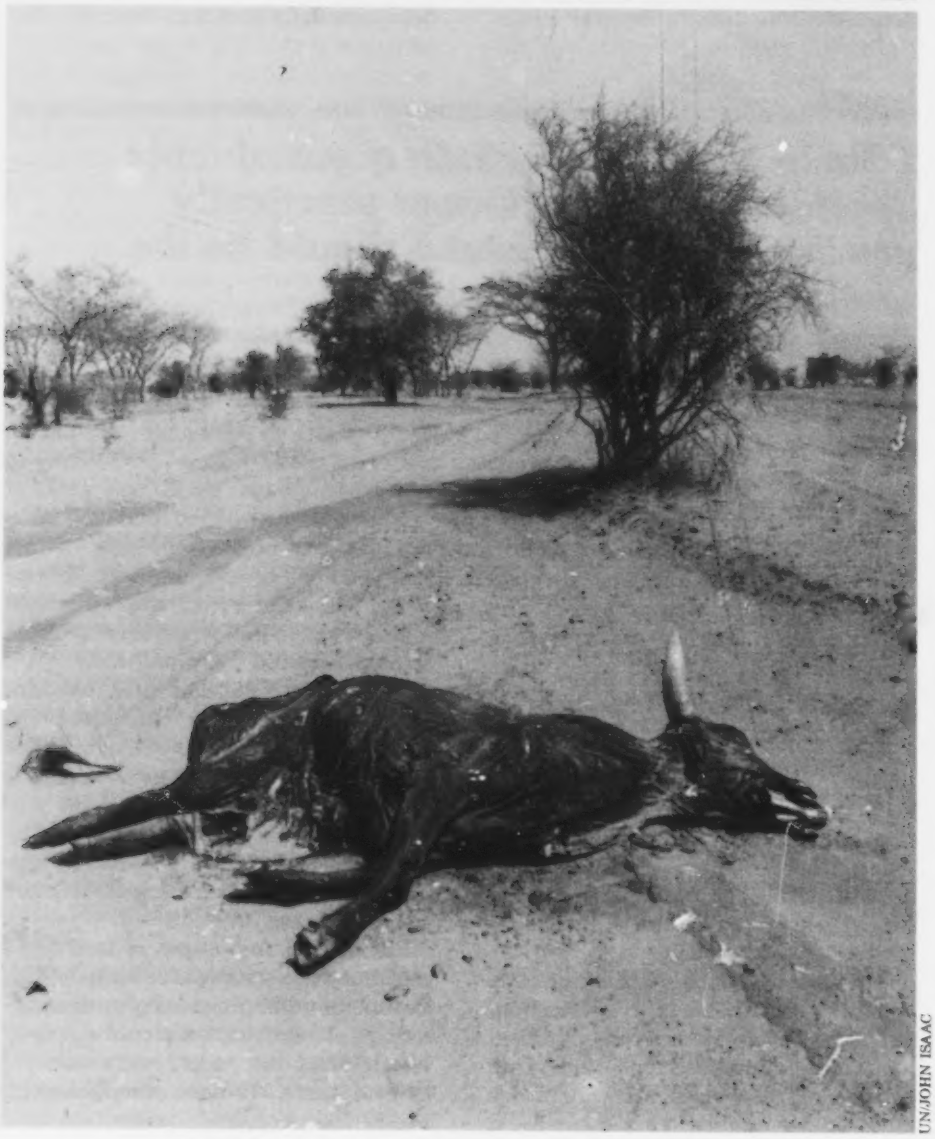
Improvement in living standards, we are told, depends on economic growth. That sounds eminently reasonable, but what seems to be overlooked is that in order to make such an improvement, the rate of economic growth has to be significantly greater than the growth in

the population. Yet, one of the most persistent complaints is that the economic system is unfair because the rich countries are getting richer while the poor countries are getting poorer. It may well be true, but it should be obvious that in a community with a stable population and using its resources at a sustainable rate, only a modest level of economic growth is necessary to achieve greater wealth, whereas in a community with a rapidly growing population, the same level of economic growth may not even be able to keep up existing standards.

It is not difficult to appreciate why economic growth is so popular with academic economists and politicians. They pursue it like the Holy Grail because it appears to be the easy way out of all sorts of intractable problems in the short term. In the long term it merely makes the problems even more difficult.

The facts are that we cannot make the earth any bigger than it is and we can-

A dead cow by the roadside in drought-ridden Chad is a poignant reminder of the effect of human population growth on degradation of natural habitats.



UN/JOHN ISAAC

not squeeze any more out of its natural systems without changing its whole character and, very probably, damaging those systems beyond repair. I rather doubt whether indefinitely sustainable development is any longer practically possible. I suggest that the aim should be the sustainable use of resources.

I think we have to come to accept that if we want this planet of ours to continue to provide future generations with a pleasant home and with interesting, useful and beautiful companions, we have to learn to live by its rules. Humanity has achieved a very great deal through its science and technology, but it needs one thing more – to accept the facts of life that science has revealed to us.

I doubt whether indefinitely sustainable development is any longer practically possible. The aim instead should be the sustainable use of resources.

Everybody accepts that agriculture is essential for human survival, but, however unpalatable, it is a matter of fact that the cultivation of domestic crops and animals is having a significant impact on the chances of survival of many wild species of plants and animals. For a start agriculture needs land, preferably fertile land, and it needs rainfall or irrigation to supply the water that is essential for growth.

For a long time the Malthusians reckoned that food production could not keep up with the increase in the population, but by taking in more land and by using modern methods of crop and domestic animal production, that limitation appears to have been postponed, if only for the time being.

Wherever agriculture takes place, the natural vegetation has to be removed and almost every other living organism has to be eliminated or controlled. Herbicides, pesticides and fungicides have to be applied as the occasion demands – and that is increasingly often – and there is also a need for fertilizers, growth hormones and regulators. In addition, it seems that the intensive production of domestic animals cannot do without a mass of steroids, antibiotics, hormones and vitamins, while overgrazing occurs all too frequently and causes erosion and desertification. It is difficult to believe that domestic animals have reached such numbers that their production of methane is contributing to the "greenhouse" problem.

It should not unduly stretch the imagination to appreciate the effects of all this on wild species. Land has been cultivated and domestic animals have been reared for centuries, but with the rapid growth of the human population and with the transfer of fertile land to the urban sprawl, whole new areas of previously uncultivated land have been brought into production. Most of this new land has been taken from natural forest, particularly from vital watershed and catchment areas, or from what used to be considered marginal land.

Quite apart from the denial of habitat for wild species, the change in the vegetation and the use of chemicals is bound to interfere with the food chains of a number of species. Drainage and reclamation of marginal land also interferes with migratory routes by disturbing or removing resting, feeding and breeding areas.

But even if the output of food could continue to be increased to keep up with the current and projected growth of the human population, we should not overlook the fact that people cannot survive by food alone. We have other essential needs: We need fresh water; we need

clothing; and we need some sort of shelter from the elements. On top of that, we need supplies of energy for domestic purposes; we need means of transport; and we have become dependent on the supply of consumer goods. This, in turn, means that we need the vast and growing industrial infrastructure with its insatiable demand for raw materials and its ever-increasing production of polluting effluents. Economic development means more of all that.

Fresh water is essential for all life, but is already becoming a serious problem for the people who live in the hotter and drier climates. In the Middle East, the demand for water for human consumption, industry and irrigation is rapidly overtaking supply and this is bound to lead to unpleasant political problems. There can be little doubt that difficulties will soon arise from the growing megacities and for the industrial conurbations.

To make matters worse, we use the river systems as suppliers of water for domestic and irrigation purposes, as well as sewers for human effluent and to dispose of noxious industrial and agrochemicals. I have seen this for myself in such places as China and Indonesia. I am glad to say that a non-governmental organization has been set up in Jakarta to attempt to clean up its rivers and drainage ditches and the heavily polluted bay.

Furthermore, valuable topsoil eroded from deforested catchment areas and overgrazed land is carried away by the river systems. This makes the water more difficult to use for domestic purposes and it silts up dams and irrigation systems. The combination of silted and polluted water then spills into the sea causing damage to tidal estuaries, coral reefs, mangrove swamps and fish stocks. Anyone flying over Madagascar or along the Atlantic coast of Morocco can see what looks like the land bleeding into the sea.

If people are having problems getting enough water, the situation for wildlife is desperate. The more we pollute and tinker with the aquifers and the hydrological cycle, the more difficult we make it for the wild plants and animals which depend on rainfall, the natural flow of rivers and on the marshlands and estuaries. It is not doing people much good either. The poisoning of aquatic plants and invertebrates severely reduces the fish population, which used to be a valuable source of human food. The drainage of marshes and wetlands removes the habitat for wildfowl, another valuable source of food.

Most species of seafish are highly productive, and apart from providing food for many land and sea animals, they have been a major source of food for the human population for a very long time. Today, no other wild animal species is being exploited by people with quite such single-minded intensity. Everything from whales to whitebait are taken from the oceans to satisfy human hunger and to supply food for his domestic animals and fertilizer for his crops.

In principle there is not harm in this, people are just acting as predators, but there is mounting evidence to suggest that the rate of exploitation is much too fast. World fish catches grew from 20 million tons in 1950 to almost 70 million tons by 1970 and they would have gone beyond 80 million tons had there not been a collapse of stocks of herring and cod in the North Sea and the Atlantic, and the anchovy fisheries off the west coast of South America in the 1970s.

Furthermore, the methods used to catch fish are putting many other species at risk. Monofilament nets catch seals, dolphins, birds and many other animals of no commercial value at a rate which most of them cannot possibly sustain. This wasteful and damaging overexploitation is taking place in the open oceans beyond the limits of national control, although in some cases it is taking place within territorial limits with the tacit approval of the countries concerned.

There can be no doubt that such practices should come under some sort of international control, but the perpetrators claim that the starving millions need the food and that they need the jobs. It should not be very difficult to imagine the consequences of the indiscriminate exploitation of a dwindling resource in order to meet a rising demand.

If we want this planet of ours to continue to provide future generations with a pleasant home and with interesting, useful and beautiful companions, we have to learn to live by its rules.

Clothing may not seem to be much of a problem, but natural fibres have to come from domestic crops and animals, and the bigger the human population becomes, the more of the dwindling supply of land will be needed for food production and the less will be available for the raw materials for clothing. Useful wild species are declining at such a rate that they can no longer be counted as a significant source of supply. Artificial fibres will, of course, continue to be available so long as the supply of oil and coal lasts out.

Modern buildings are constructed of steel and concrete, but traditional buildings and the interiors of modern buildings depend to a large extent on wood. Wood is also the main source of energy for heating and cooking in the less prosperous parts of the world. We have already reached the position where the consumption of wood for fuel, buildings, furniture and paper is greater than the sustainable supply from the world's natural forest, and in spite of the rapid increase in commercial plantations of fast-growing trees. Furthermore, much of the available timber is simply wasted as it is cut and burnt during the clearing of land to provide growing populations with land for cultivation.

To the environmentalist, forests are needed to absorb carbon dioxide and to help to generate rain as a source of fresh water. The forest means quite something else to the conservationist.

Rather than generalize about what is happening to the world's natural forest as a whole, I think it might be more comprehensible just to look at the situation in the most vulnerable areas.

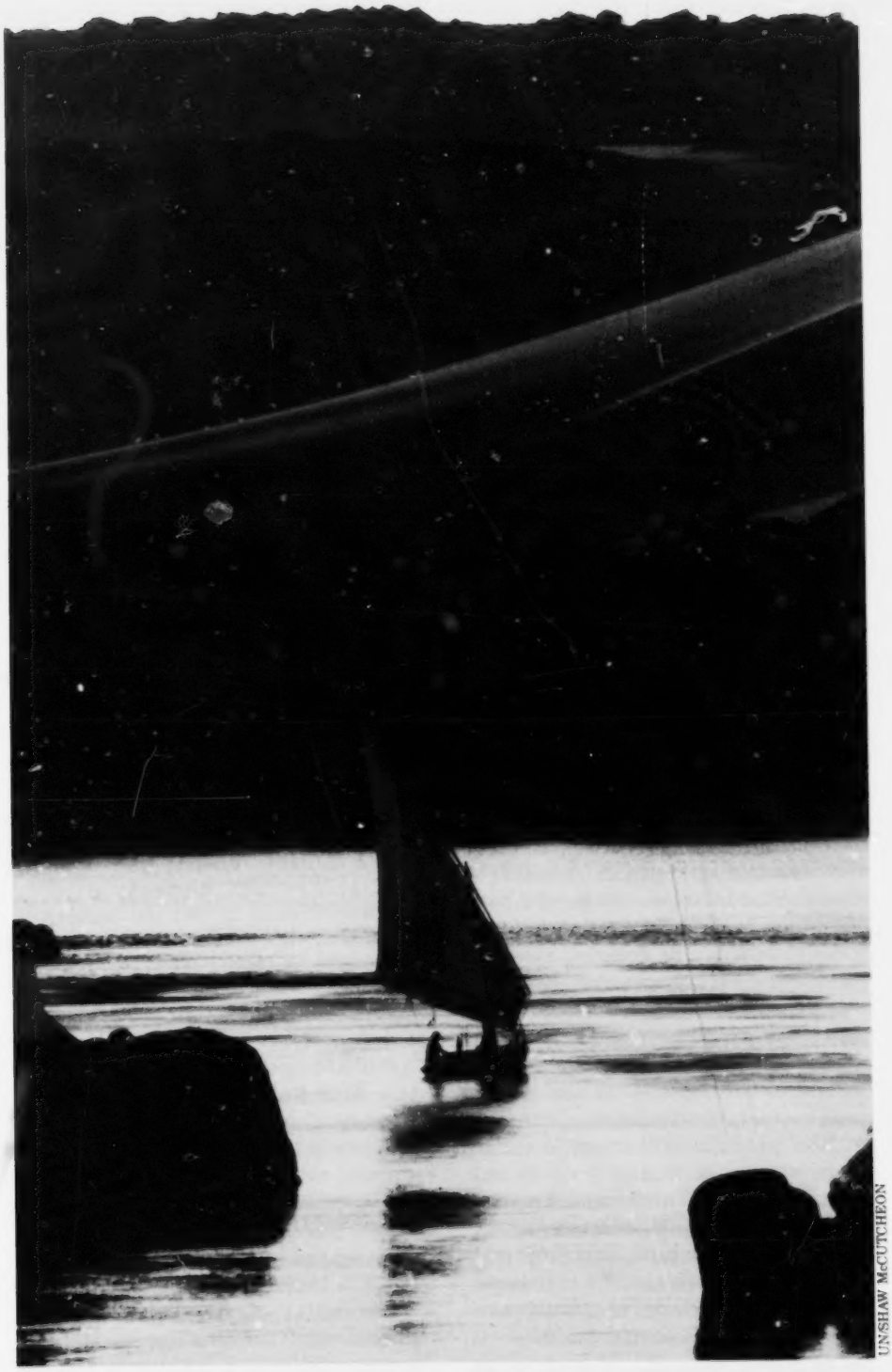
Norman Myers has identified 10 forest areas that he describes as "hotspots". He has chosen them because they are characterized by exceptional concentrations of species of high levels of endemism and are experiencing unusually rapid rates of depletion. This is how he summarizes the situation:

> While these "hotspot" areas comprise less than 3.5 per cent of remaining primary-forests, they harbour over 34,000 endemic plant species (27 per cent of all plant species in tropical forestland, 13 per cent of all plant species worldwide). They also feature 700,000 endemic animal species and possibly several times more. Unfortunately they appear likely to lose 90 per cent of their forest cover as soon as the end of the century, or shortly thereafter, causing the extinction of almost 7 per cent of Earth's plant species and at least a similar proportion of animal species, this occurring in only 0.2 per cent of Earth's land surface.

Even in countries which are determined only to exploit their forestry resources at a sustainable level, the selective felling of commercially valuable species will inevitably change the ecology of the forest.

All the evidence suggests that the rate of extinction of species of plants and animals has risen dramatically in recent years. Various authorities have estimated that the "background" rate of extinction of species over the last 600 years has been about one species per year. The rate today has been calculated to be between 1,000 and 2,000 per year, and it might well rise to an average of 100 per day.

This loss of individual species is bad enough, but it also means a decline in biological diversity and consequently the ability of nature to adapt to change. This decline in the gene pool – this really is genocide – will certainly have



UN/SHAW McCUTCHEON

A felucca plies the waters of the Nile just below Egypt's Aswan Dam. Increased demand for water worldwide is rapidly overtaking supply, with dire consequences not only for humans but a vast variety of wildlife.

dangerous consequences for our domesticated plants and animals and for our ability to control diseases.

There are many differences between the behaviour of *Homo sapiens* and animal species, but the one thing that causes its own catalogue of disasters is the human demand for luxuries. Luxuries in the sense that they are not, or no longer, essential to human survival. For instance, people have always liked to wear furs. Where the fur-bearing species are bred in captivity, there is no technical problem; most people use leather from domestic animals for one purpose or another. The danger arises when wild populations are exploited beyond sustainable levels. Increase in demand together with loss of habitat to human occupation is a certain death sentence to many wild species.

The classic casualties of the luxury trade are elephants for their ivory and rhinos for their horns. Properly managed in protected habitats, both species could theoretically sustain controlled culling, but, except in some parts of Africa where the culling of elephants may be necessary in order to keep the population in balance with their declining habitats, all the other species are in danger of extinction.

Regulated hunting is no different from controlled culling. What neither wild nor domestic species can tolerate is uncontrolled killing and indiscriminate poaching. In both cases poaching is fuelled by increasing demand, which in turn means high prices, and these can only be afforded by the rich.

Elephants and rhinos are only two of a great many cases of illegal killing or capture of wild species for the illegal trade in live or dead individual animals or their products. Furs, reptile skins, horns, glands, teeth and feathers are typical of the items in demand. The survival of many species of tropical fish, parrots and other birds, monkeys and apes, as well as rare and endangered species of all kinds of plants are threatened by this deadly trade.

It is estimated by the Convention on International Trade in Endangered Species, or CITES, that the international trade in wildlife is worth approximately US$ 5 billion every year. Apart from the threat to the survival of many of these species in the wild, the worst feature of this illegal trade is the condition in which the live animals are shipped from one place to another.

Some go as pets, some go to individual collectors, others are smuggled through the hands of unscrupulous dealers and can end up in zoos without the zoo authorities being aware, or wishing to be aware, of their origin. Monkeys and apes can be destined by similar routes to medical research laboratories.

Unfortunately, tourists are among the worst – although unwitting – consumers of such products. I once counted about 20 shops selling ivory products between the Oriental Hotel in Bangkok and the airport. There are similar shops in the shopping arcades in almost every hotel in Hong Kong.

Tourism also causes serious disturbance. Let me quote from a report from the Director of the Charles Darwin Research Station in the Galapagos:

> Rapidly increasing tourism has caused major changes in the Galapagos Islands.... The terrestrial environment of the Islands is extremely fragile and cannot sustain a large population.... More airline flights and incoming cargo, to support the high immigration and growing tourism, has resulted in the introduction of many new plants and animals. Insects and other organisms, and diseases, arrive unintentionally in food and building supplies, while plants are intentionally brought to the islands by local residents without a thought for their potential impact on local plant communities.

A report on the Annapurna Conservation Area Project states:

> While tourism is Nepal's leading source of foreign exchange, it has produced negative effects on the natural environment, village economies and cultural traditions.

Set against this are the undoubted benefits to the local, and usually poor, communities of the legal and sustainable exploitation of tourists and wild species of plants and animals.

I think it should be glaringly obvious that as the number of people increases, so does the damage to the global biological and physical systems. These

are our life-support systems and we damage them at our peril. The trouble with those who claim that there is lots of room for more people is that they seem to be quite unaware, or completely unconcerned, about this damage and its consequences for the welfare of future generations of all living species.

Nature is a dynamic system which is constantly seeking a state of equilibrium or homeostasis. Left to itself, the system dictates that if the population of a species becomes too numerous for the size of its habitat or for its source of food, starvation and death redress the balance. On the whole the system seems to have worked sufficiently slowly for species to have time to recover from population crashes or natural disasters and to become adapted to new conditions, but the fossil record suggests that natural disasters caused quite dramatic discontinuities from time to time.

I think it would be fair to say that the planet is witnessing just such a discontinuity at the present time. In this case it is being caused by the overwhelming success of one of its species of animals. The natural systems of the planet are being distorted both by the sheer size of the human population as well as by its activities and its insatiable demand for all kinds of resources.

All the evidence points to the conclusion that the human species has offended against one of nature's basic laws. We have overstretched the carrying capacity of our habitat. Every farmer knows about this law. He knows perfectly well that a field of a given size will only support so many cows or so many sheep. If he overstocks that field, the grass will be consumed and his stock will starve and die. Technology can put off that critical moment for the human population, but it cannot postpone the inevitable consequences for very much longer. Bill McKibben in his book *The Death of Nature* has this say:

> I believe that without recognizing it we have already stepped over the threshold of such a change; we are at the end of nature. Not that it could happen, but that it has.

As we all know, the earth is finite in size and, considering the harshness of the conditions outside our atmosphere, any disturbance to its climatic systems could be disastrous. As Professor Lovelock has pointed out, life exists on earth because there is life on earth. The planet should be seen as a living organism in its own right, and, like a tree, every component has a significant part to play in the life and well-being of the whole.

If we look at the earth from this dispassionate point of view, it must be apparent that something is going seriously wrong. Viewed from space it can be seen that the forests are diseased or disappearing, the rivers are spewing valuable topsoil into the oceans, the air has become polluted with nitric and sulphuric oxides and the signs of human habitation are becoming more obvious and more widespread. Viewed from a bit closer, the evidence of change and damage becomes even more evident.

Perhaps least evident is that the increase of the human population has been matched by the decrease in the populations of other forms of life. As people move in, wildlife has to move out, but while people can make their own habitat virtually anywhere on earth, wild species of plants and animals are tied to their particular habitats. As the forests shrink, as the marshes are drained, as the rivers are polluted, as the dams, highways, railroads, factories and houses are built, so the wildlife loses its habitat and, unable to find any food and nowhere to breed, it just dies out.

Migratory animals, and especially birds, are vulnerable in a different way. Their habitats can be spread over hundreds and even thousands of miles and include territories across a number of human conceived boundaries. If any part of the migratory route of any species is damaged or destroyed, it means the end for that species.

I realize full well that to draw attention to the consequences of continuing population growth does not make any contribution to the solution of this extremely emotive social problem. I make no excuses for this. My view is that organizations should stick firmly to the purposes for which they were founded. WWF was founded to achieve the conservation of nature and to attempt to pre-

Where fur-bearing animals are bred in captivity, there is technically no problem. The danger arises when wild populations are exploited beyond sustainable levels. Increase in demand, together with loss of habitat to human occupation, is a certain death sentence to many wild species.

vent the extinction of species. In the same way, UNFPA was founded to tackle the problem of growth of the human population.

I recognize that WWF will have an almost hopeless task if the UNFPA fails to make any headway, and it is for this reason that I would urge that the Fund should receive much greater support so that it can redouble its efforts to achieve a stable world population. Indeed, if the Fund fails in its task, then nature will take its course and settle the matter in its own all too familiar way. The fuse of the population bomb has already been ignited, and the consequences of the exploitation for the future of the world will be a great deal more devastating than any nuclear holocaust.

It is not for a conservationist to say how this bomb should be defused. No more should an orthopaedic surgeon tell a gynaecologist how to deliver a baby, but there can be no doubt that both are concerned with medical care. I have no doubt that UNFPA is concerned about the conservation of nature, and WWF promotes family planning in its integrated conservation projects.

I hope I have made it clear that both the control of human population numbers and the conservation of nature are concerned in their own ways with the future health and welfare of the planet Earth and of all its living inhabitants.

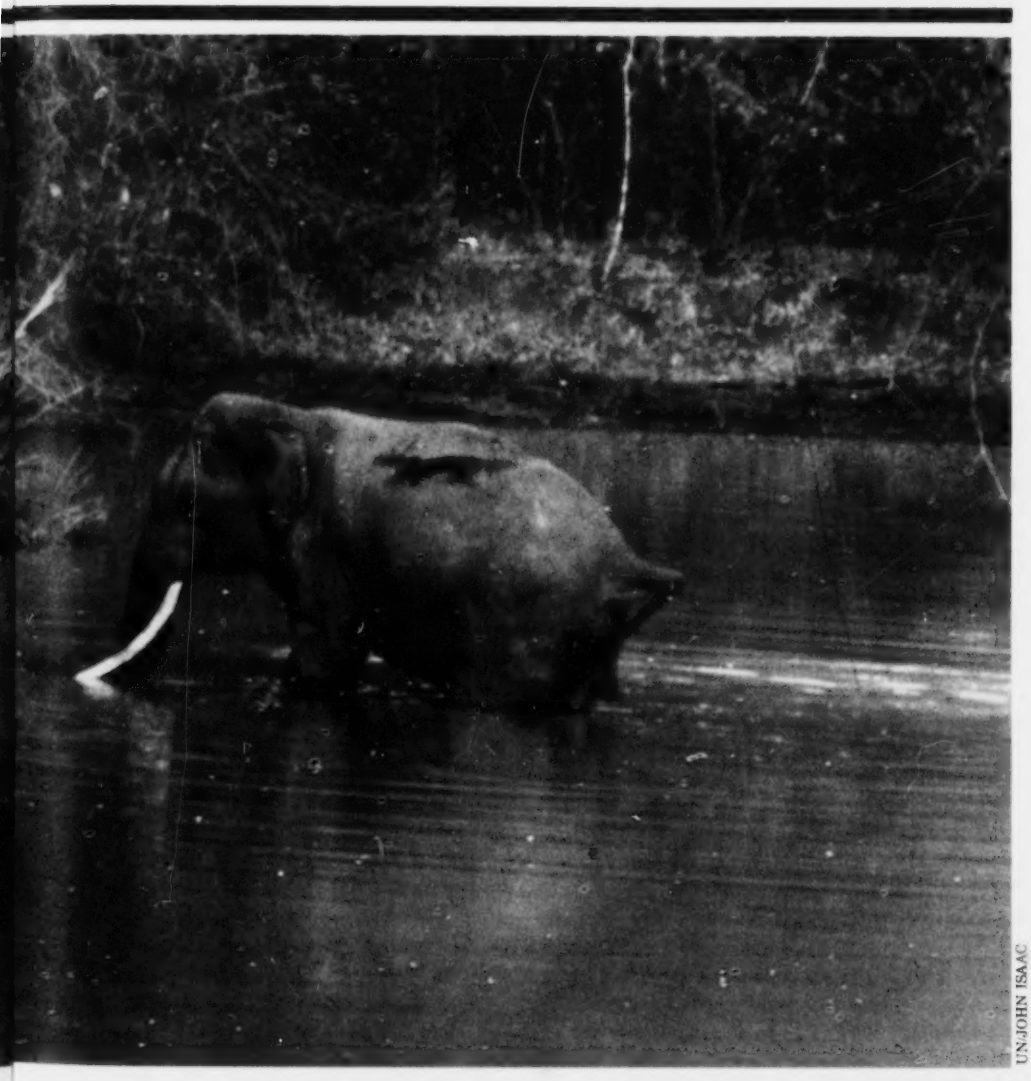
There is no getting away from the fact that our planet is facing an ecological crisis, but it has not been created by human thoughtlessness. It was not brought about by the poor, the disadvantaged and the uneducated. The very opposite: It was brought about by human scientific and technological genius. It is the creation of the most highly educated

and trained people the world has ever seen. It seems to me that it is about time that these same people, the leaders in thought, in politics and in administration began to face the facts and started to make serious efforts to find ways of solving the crisis.

Aldous Huxley put it very clearly: "Facts do not cease to exist because they are ignored."

There can be no doubt at all about the facts. The human population explosion, sustained by human science and technology, is causing almost insoluble problems for future generations. It is responsible for the degradation of the environment through the pollution of the air and the water; it is consuming essential as well as non-essential resources at a rate that cannot be sustained and, above all, it is condemning thousands of our fellow living organisms to extinction. □

Uncontrolled killing and indiscriminate poaching threaten the survival of whole species of wild animals. Elephants are among the species prized by hunters engaged in the illegal ivory trade.



UN/JOHN ISAAC

WOMEN IN AFRICA: New Opportunities

by David K. Willis

Some years ago, Mary Okello became the first African woman ever to manage a bank branch in Nairobi. "If a man wanted to borrow money", she recalled recently, "he simply filled out the application form and I and my staff evaluated his situation. But if a woman wanted to borrow, her signature had to be countersigned by a lawyer – not to confirm her character or her assets, but to certify that the poor woman had actually understood the form she had signed. I suddenly realized that if I wanted to borrow some money, I would have to ask my sister, who is a lawyer, to countersign for me – even though I was the manager of the branch!"

In that single reminiscence, Mrs. Okello summed up some of the difficulties – and some of the opportunities – challenging the women of Africa as they face the 1990s and a new century in the poorest and, in numbers, the fastest growing part of the world. Women are Africa's most exploited resource. They are virtually invisible in national accounts, statistics, economics and government. They grow 80 per cent of the food Africans eat every day and form 60 per cent of the work force, but earn only 10 per cent of the cash income. They own little land. To Mary Okello and other educated women in Africa, the bank practices are one example of the attitudes that need to change if women are to gain more control over their own lives. Throughout Africa, a woman still bears an average of more than six children during her reproductive years. At the same time, more and more women are discovering that education, determination, perseverance and courage can lead them to more status, more dignity, more control over decisions ranging from what job to hold to how many children to have. Many families have come to realize that fewer children mean less poverty, more opportunity.

After attending university in Kampala, and being trained in banking abroad, Mrs. Okello rose to the position of branch manager in Nairobi, working in various ways to enable women to gain access to credit to expand farms and small businesses. She now divides her time between Nairobi and Abidjan, where she is the first woman to become a director of the African Development Bank and serves as a senior adviser to the Bank's president.

Before she left her Nairobi branch,

DAVID K. WILLIS, *former Third World correspondent of the* Christian Science Monitor, *is currently an independent film producer and writer based in England.*

"Creating more opportunities for women is a matter of simple justice and human rights that is essential for the development of the African continent as a whole."—Dr. Wangari Maathai, Kenya's first woman Ph.D.

AFRICAPICS:KENYA

As the first African woman bank manager in Nairobi, Mary Okello helped change regulations to make it easier for women to obtain loans. She went on to become the first woman director of the African Development Bank.

Mrs. Okello persuaded her parent company to change the loan application forms. Now she is one of many women—and some men—working to change other discriminatory practices. "At least", she said, "more male presidents in Africa are appointing more women to decision-making positions. We even hear male leaders talking in public about the issue of women. The laws, too, are beginning to change".

Colonial administrators in both East and West Africa brought with them concepts of law that reflected the lowly status of women in their own countries. The Napoleonic Code forbade women with children and the mentally deficient from entering into contracts. In Victorian England women did not own land or vote. Now, African countries such as Kenya and Zimbabwe have passed laws allowing women to own and inherit land and to act in business and government as men do.

Yet the law is in conflict with culture

and tradition. Apart from some West African countries as small as Togo, where family descent is through the female line and where women market traders handle millions of dollars, men dominate society and women's progress is slow. Men are accustomed to having the final say; women lack the experience and the self-confidence to differ with them. Some 80 per cent of African women live in rural areas where men own the land, decide what will be planted and when, handle the money, rule the villages, and, in many cases, take more than one wife.

Women are Africa's most exploited resource. They grow 80 per cent of the food and form 60 per cent of the work force, but earn only 10 per cent of the cash income.

I spent two months in two East African countries, Kenya and Zimbabwe, in late 1989, making a 35-minute television documentary on the status of women for the United Nations Population Fund. The film was in line with the theme of women adopted by the 1989 state of world population report. In that report, the Fund's Executive Director, Dr. Nafis Sadik, emphasized the central role of women in development. Ignoring their needs, she said, results in "uncontrolled population growth, high infant and child mortality, a weakened economy, ineffective agriculture, a deteriorating environment, a generally divided society and a poorer quality of life for all". Dr. Sadik urged more investment in women because it meant "widening their choice of strategies and reducing their dependence on children for status and support. Family planning is one of the most important investments, because it represents the freedom from which other freedoms flow".

Not just women's lives are at stake. Dr. Wangari Maathai, a biologist who was the first woman to gain a Ph.D. degree in Kenya as well as the first woman to become chairman of a department at the University of Nairobi, sees creating more opportunities for women as a matter of simple justice and human rights that is essential for the development of the African continent as a whole. "It is absolutely important that women take part in the development of their countries", she said. "You cannot have a society where men alone work and develop a country. It has to be a joint effort. And this is what I think men must understand. They cannot do it alone. They need their women, and the women will not help if they are in the background, or if they are suppressed or if they are mocked. Adds UN consultant Dr. Eddah Gachukia: "Africa will not move forward if Africa leaves behind more than half its population, its women".

Many of the women and men I talked to stressed the importance of education as a long-term answer to reducing the subservience of women. Studies throughout the developing world show that the more educated women are, the fewer children they have. The latest demographic and health survey, carried out for the Kenyan Government by the United States Institute for Resource Development (IRD), shows that the proportion of women with some secondary education using contraception (40 per cent) was more than twice that of women with no education (18 per cent).

However, female illiteracy in the developing world remains high. The final declaration of the International Forum on Population in the Twenty-first Century, held in Amsterdam in November 1989, spoke of the "critical importance for development" of lifting female literacy to at least 70 per cent

and of achieving universal enrolment of girls in primary schools by the year 2000. It will take longer to boost the percentage of girls in secondary schools and in universities. In Kenya, independent for more than 25 years, girls comprise about half of all primary school classes, 40 per cent of secondary school enrolment, and about 30 per cent of universities, up from 15 per cent a decade ago.

Educating women in the sciences is a particular area of concern. Dr. Gachukia says that in Africa, science is not just a classroom subject. "As we began to analyse women's roles, particularly in the rural areas where they take care of all the agricultural production, livestock production...[and] the health of their families, we recognized that all these fields are science-based. Unless you expose women to science you are not going to have a lot of development".

"Unless you expose women to science, you are not going to have a lot of development."—United Nations consultant Dr. Eddah Gachukia

At the prestigious Kenya High School for girls in Nairobi, which sends 85 per cent of its graduates to universities, 16-year-old Betty Wamola from the Indian Ocean coast laughed when I said many people thought science was too hard for girls. She wants to be a medical doctor. "I don't think it has anything to do with whether you are a girl or a boy", she said. "It has to do with your mind—whether you know enough. The sciences are a lot more difficult than the arts but they're more interesting and you can get better pay". Her friends share her high ambitions, Betty said. "Some want to be engineers, and aviators, and lawyers. A couple of them are old-fashioned: They want to be housewives". Betty intends to break with tradition and marry only after she graduates from university, and she intends to have only one or two children.

Betty Wamola ended her filmed interview by urging women who wanted careers to "go for it. If you are scared of what people will say about you, then you'll never get anywhere". When the camera had been turned off and I complimented her on her forthrightness, she revealed another side to being a woman in Africa today: "And who is going to marry me if I say things like that?" she asked gloomily. I said I was sure that an educated African young man would be more than happy to marry her. "You don't know African men", she replied. "They might be educated but they never change. He'll come home and read the newspaper, and I'll have to get the dinner..."

Dr. Maathai nodded when I told her the story. "Yes", she said, "it happens. As long as men refuse to give opportunities to women, and as long as there are so many other women without her ambitions who are willing to support men's psyche, women who speak out will be ostracized. But women must keep on trying".

At the Amsterdam Forum, two West African women came up to me after seeing the film and sympathized with Betty. "African men don't change very much", one of them remarked. "It's tough to be a woman in Africa. There's a price to be paid..."

We interviewed a number of other women fighting to enter male preserves. One was Emily Njovani in Harare, who studied mathematics and computers in high school, completing her courses in Britain at the time Zimbabwe gained its independence. Back home, the local university lacked the resources for her to continue her computer study. She

managed to get a job as an air stewardess, but she wanted to be a pilot. She paid for her own private flying lessons, then passed all the tests required by Air Zimbabwe to enrol in the 14-month course at the Oxford Flying School in the United Kingdom, where British commercial pilots are trained. No black Zimbabwean woman had ever attended the school. "People didn't think I'd pass", she said. But she was sent – the only black woman among 400 student pilots and engineers – and passed the course. When I interviewed her at Harare Airport, she was about to qualify on an Air Zimbabwe Boeing 737. Management was behind her, despite rumblings of resistance among some male employees. "Women can fly as well as men", Emily said. "This is the kind of profession where accuracy and precision are very important and if any woman is determined, she can do it".

Kate Openda has become the first woman to present a weekly sports programme on Kenyan television – "The Voice of Kenya", or "VOK". A high school English teacher and actress, she began as a swimming commentator during the All-Africa Games. Now, she goes into "VOK" studios every Friday night to host a sports wrap-up show that often includes boxing and other male sports. She enjoys her work, but says the men in the studio don't make it easy for her. "They really don't encourage you, and enjoy it when you make mistakes and expand on those mistakes". Kate thinks men only regard women as equals when it comes to paying household bills. She intends to make sure that her baby son grows up knowing that women are equal to men. "I'm going to emphasize the fact that she's your wife, she's female, yes, but first

Emily Njovani, shown at the controls of a Boeing 737, is the first woman commercial pilot in Zimbabwe. She was the only black woman in her class of 400 at flying school in the United Kingdom.

AFRICAPICS KENYA

of all she is your friend and therefore your equal". In Amsterdam, the two African women who came up to me after the film commented on her good intentions, but one said, "It didn't work with my son. He's in London at university and he won't have anything to do with African women. His current girlfriend is from Sri Lanka".

Women in Africa still have a long way to go, particularly in politics and economics. Not just male attitudes have to change: Women themselves need to be more aware of the possibilities open to them.

Change is slower in the rural villages. We spent two days filming Elsy Kagendo, who lives in the village of Kiriani in the northern highlands of Kenya. She has four boys, a husband who works as a stonemason, and a never-ending round of 18-hour days during which she cooks, fetches water and firewood, feeds the cows, goats and hens, gets the children off to school, cleans, tends the coffee trees and performs other jobs. She doesn't dream of challenging the dominance of men, but she has decided not to have any more children. "It's too expensive to have more", she said. Her decision is made easier because all her children are boys; if they were girls the pressure to have boys would be immense. She receives regular visits from a village health worker who is employed by Chogoria Hospital 3 kilometres away. The worker integrates family planning advice with general maternal and child health care; three quarters of the village women now take birth control pills. The hospital employs local health workers in 30 other villages and uses a Western donor's gift of micro-computers to keep track of all the clients. The hospital says the programme averts 3,200 births a year, the equivalent of 60 classes in primary schools.

A major challenge to family planners is the lack of interest among men, particularly younger men. As part of its Africa-wide programmes, UNFPA is financing classes in western Kenya aimed at motivating men to adopt family planning and to allow the women in their families to practise it. So far only older men have responded. Participants told me they thought that young men might in time be persuaded to use condoms, but that vasectomies were a much more distant prospect. Dr. Louis Okombo, head of the programme, said particular attention had to be paid to uneducated younger men who seemed to have little thought for the future. Meanwhile, the older men attending the UNFPA classes seemed persuaded that smaller families were essential to avoid the pressure of rapidly rising populations on land, schools, hospitals and jobs. Officials I met in both Kenya and Zimbabwe were heartened by demographic and health survey results over the past five years showing a fall in the total fertility rate and a rise in usage of contraceptives among women. Both sets of officials, however, said that much more needed to be done.

I found some evidence that rural women, who raise the crops that the continent eats, could gain access to credit even though they did not own land. The Women's World Banking (WWB) group in Kenya and other countries lends money to women whose only assets are determination and hard work. One example is Esther Wairimu, who has one acre of land outside Nairobi without electricity or running water. Five years ago, through family contacts, she met Christine Hyanga, who now heads the local WWB office. Esther obtained a loan of 20,000 Kenyan shillings (about

$1,000) and bought two pigs. Since then she has raised and sold 4,000 pigs, has paid off the loan, and opened an animal feed store. Her husband Robert has left a government job in Nairobi to help. They say it is much easier now to raise their five children.

Mary Okello is convinced that women are better and more cautious borrowers than men: "Because we have the children, we tend to think more about the future, but I think men are more concerned about today".

In Zimbabwe we filmed one of the government extension agents who tour rural areas on motorbikes to give free advice to black farmers on raising crops and livestock. The agents, from the government agency Agritex, have helped black farmers boost yields of maize and other crops since independence in 1980, despite the poor quality of the land that most black farmers must work on.

Women's co-operative groups in both Kenya and Zimbabwe are having a hard time generating extra income. We filmed a maize co-op in Zimbabwe, whose grain grinding mill had broken and who had no money to repair it. Their soil, and their profit margins, were thin. They wanted to branch out by raising poultry, but again, the money wasn't there. Other co-operatives in Zimbabwe sew school uniforms, make crafts and bake bread. Some make some money; others need better budgeting and costing, better

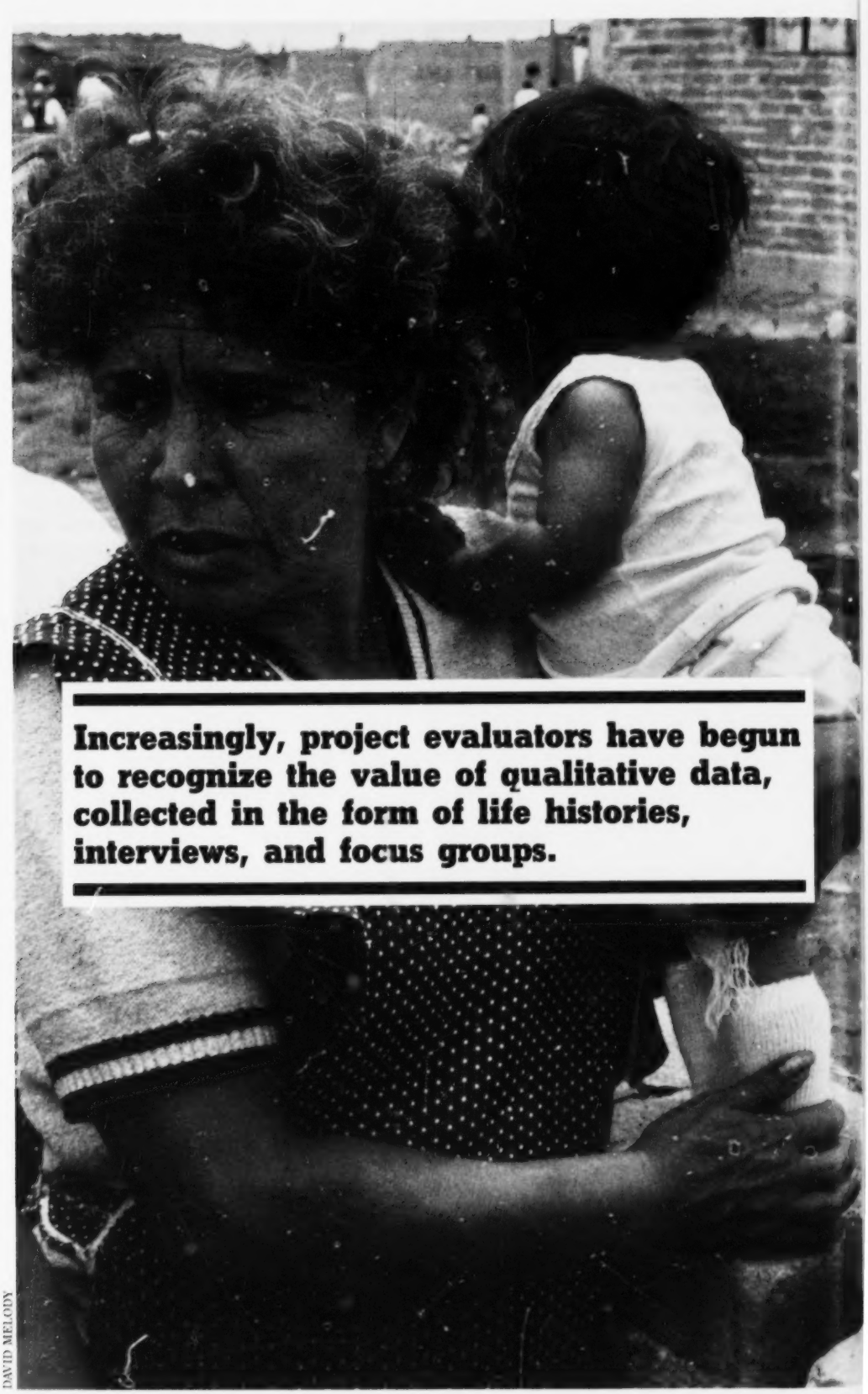
quality workmanship and more market research.

Being a pioneer isn't easy. Dr. Maathai was told she shouldn't use her academic titles because her husband didn't have them. Some considered her "too educated" to understand the needs of ordinary women. "That I found atrocious", she says. "I grew up as a country girl...and the fact that I could speak English, or knew a little bit of biology, didn't make any difference". She and other women I talked to agreed that the future would be somewhat easier for the girls now in school, because they could look to women role models, from pilots to lawyers, architects and environmentalists. Dr. Maathai is also the founder of the Green Belt Movement in Kenya, whose members have planted an estimated 10 million trees in the last decade.

Women in Africa still have a long way to go, particularly in politics and economics, where their numbers are slow to rise. Not just male attitudes have to change: Women themselves need to be more aware of the possibilities open to them. Said Mary Okello: "We have been like slaves in the last 100 years and when you are a prisoner, sometimes even when you're freed you have the mentality of a prisoner. You still think you are in prison. So we have to cultivate our own confidence and get out of our old subservient status and really fight for our freedom. I don't think anybody is just going to give it to us...." □

Women's co-operatives, like this one in Zimbabwe, have a hard time generating extra income. Groups such as Women's World Banking in Kenya are lending money to women whose only assets are determination and hard work. ,

AFRICAPICS/KENYA



Increasingly, project evaluators have begun to recognize the value of qualitative data, collected in the form of life histories, interviews, and focus groups.

DAVID MELODY

Oral Histories Help Family Planning Evaluators

by Louis Werner

Family planning evaluators are trained to pay close attention to all of a project's quantitative measures, such as service statistics, financial expenditures, manpower and equipment use. These are some of the building blocks that have helped turn family planning evaluation into a modern management science.

Increasingly, however, project evaluators have also begun to recognize the value of qualitative data, collected in the form of life histories, interviews and focus groups. However, in this more elusive form of analysis, data reliability can suffer when an informant's vocabulary and manner of speaking are edited, summarized, or "upgraded" to suit the rhetorical norms of report writing.

LOUIS WERNER *is currently collecting an oral history of neighbourhood institution-building in the Valle de Chalco for the Inter-American Foundation, and producing and directing a documentary film about a Mexican migrant worker in the United States.*

For instance, whenever interview responses are paraphrased, nuances are lost that might help to confirm or refute a programme's assumptions about acceptor preferences, complaints, or knowledge. And when a patient's testimony is edited down so that only a few words are quoted to support the findings of an evaluation, how persuasive can that testimony be?

In 1988, in a modest first step towards testing the use of verbatim testimonials of family planning acceptors for interpretative purposes, brief life histories were tape-recorded from four volunteers waiting at a clinic in the Valle de Chalco, just east of Mexico City. The statements were elicited by an initial request for a family biography and prompted in mid-course by questions about family planning. The pseudonymous testimonials were then transcribed, translated and lightly edited to achieve narrative flow.

A purely agricultural district some 20 years ago, the Valle de Chalco has seen its population nearly double in the last decade, to just under 200,000. Like Mexico City's other peripheral zones, it has one of the world's highest growth

It is time to look upon evaluators who base their findings on abridged quotations from patients in the same way we look at scientists who arbitrarily round off figures from finely calibrated measuring instruments, then report them as reliable data.

rates, and, as expected, the provision of services there has not kept pace with home building. A private family planning clinic might therefore be considered an anomaly in a neighbourhood lacking schools, running water and electricity.

In fact, the clinic is there as an experiment conducted by the Mexican affiliate of the International Planned Parenthood Federation under which recent medical graduates receive specialized training, supplies and equipment, and a temporary income subsidy in return for practising in underserved areas. The programme's long-range goal is, in effect, to "privatize" family planning by gradually removing the subsidies as the doctors establish a client base large enough to be economically viable.

Although these testimonials were not recorded as part of a formal evaluation of the clinic, they do contain insights that might help to improve both existing services and any new projects in the planning stage. Where the oral histories suggest factual errors in a patient's knowledge, fears, unresolved complaints, too rigid guidelines, or lax compliance with a doctor's instructions, they point up potential problem areas requiring attention by providers of family planning services.

There seem to be both a practical and an ethical value in letting family planning clients speak for themselves, in and on their own terms. It is perhaps time to look upon evaluators who base their findings on abridged patient quotations in the same way we do scientists who arbitrarily round off significant figures from finely calibrated measuring instruments and then report them as reliable data. The following are samples of oral histories recorded at the clinic in the Valle de Chalco:

ALICIA

I'm 23-years-old I was born in Mexico City and moved out here a year ago with my husband and two kids. My daughter just turned six. I was 17 when she was born, and I had my son three years later. I really don't want any more. You see, I've already got my boy and my girl.

I've had my IUD for a little more than a year now. They checked it three months after they put it in and said it was okay. I get a little blood off and on, but lately it's been getting heavier. That's why I came to the clinic today, to see what's the matter.

I still like the IUD much better, because before I was taking pills and they bothered my nerves. And I got pregnant anyway. The doctor told me I hadn't taken them right and that's why it happened. But I thought maybe it was the pills that didn't do the job, not me. I'd just been taking them for six months. Maybe it really was my fault, I don't know. But I ended up having my son, and at the time I knew I couldn't handle both of them. And it's still hard.

I wasn't controlling at all when my daughter came. It was just a mistake. I was still in high school and wasn't even married. I sure didn't expect to have a baby then. I had to leave school just before graduating, because I was already four months pregnant and didn't want my parents to know. In fact, no one at home knew anything about it until I was

eight months. I had to stay with my parents until she was born, then we got married and came here. Anyway, it's been all for the better.

I was thinking of getting an operation after my son came, but they said no. I was too young. I'm not sure, but I think my husband said no, too, just because of what the doctor said. I needed to have a Caesarean, and I asked for the operation right then. But they all said no. We don't have money for any more kids, so I've got to keep controlling the way I am now.

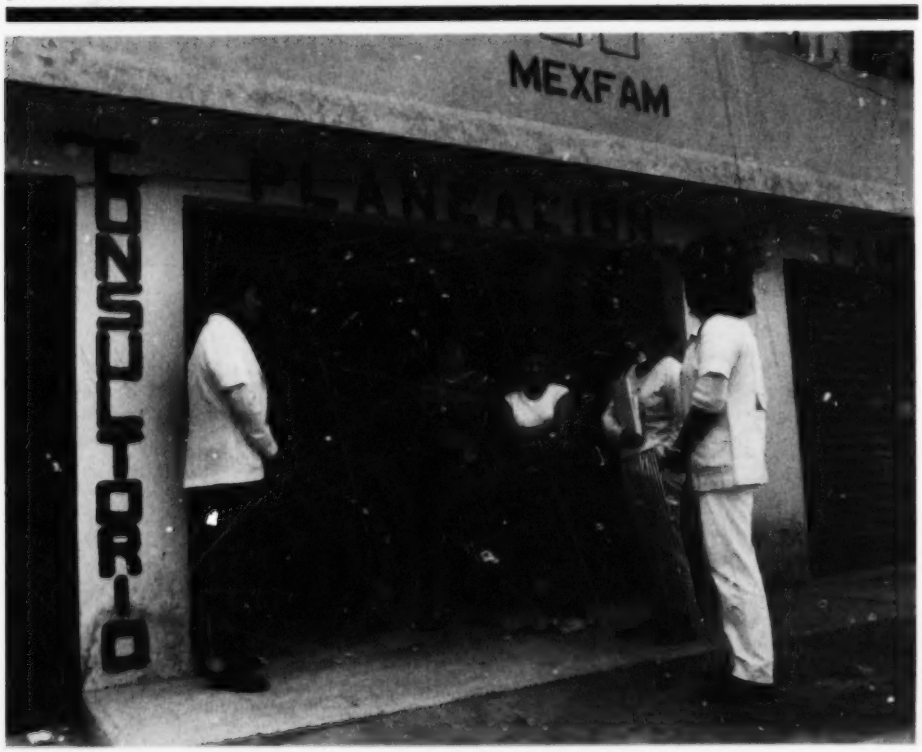
I've got seven brothers and sisters. One sister is 20, and she's already got two kids. Another sister is just 15 and she's pregnant for the second time. She lost her first baby. And my brother is married, but his wife lost her baby after just six months. There's a lot of bad luck in my family. That's another reason I wanted an operation. But my mother said no, too, maybe because she had a ligation a long time ago and ended up with my little sister anyway. A real lot of bad luck.

GRACIELA

I'm 21-years-old. My daughter just turned five months. I got married last year in this neighbourhood, but my parents still live in Mexico City. I came out here with my brothers and sisters a couple of years ago so they could start the school year. But they all went back when my parents couldn't sell their property in town. I stayed, because this is where I met my husband.

I came today with Jorge so the doctor can tell us what's the best method for not getting pregnant. My mother told me a few things about the different ways but I'm not sure she's right. She said an IUD can perforate your uterus, and if you take too many pills they'll make you

Future home of a family planning clinic (Consultorio Planéacion Familiar) set up in rural Mexico as an experiment in private rather than State-run services.



DAVID MELODY

sterile. That's why I've come today–for the doctor to tell us what's what about controlling. I'll take whatever he tells me is best.

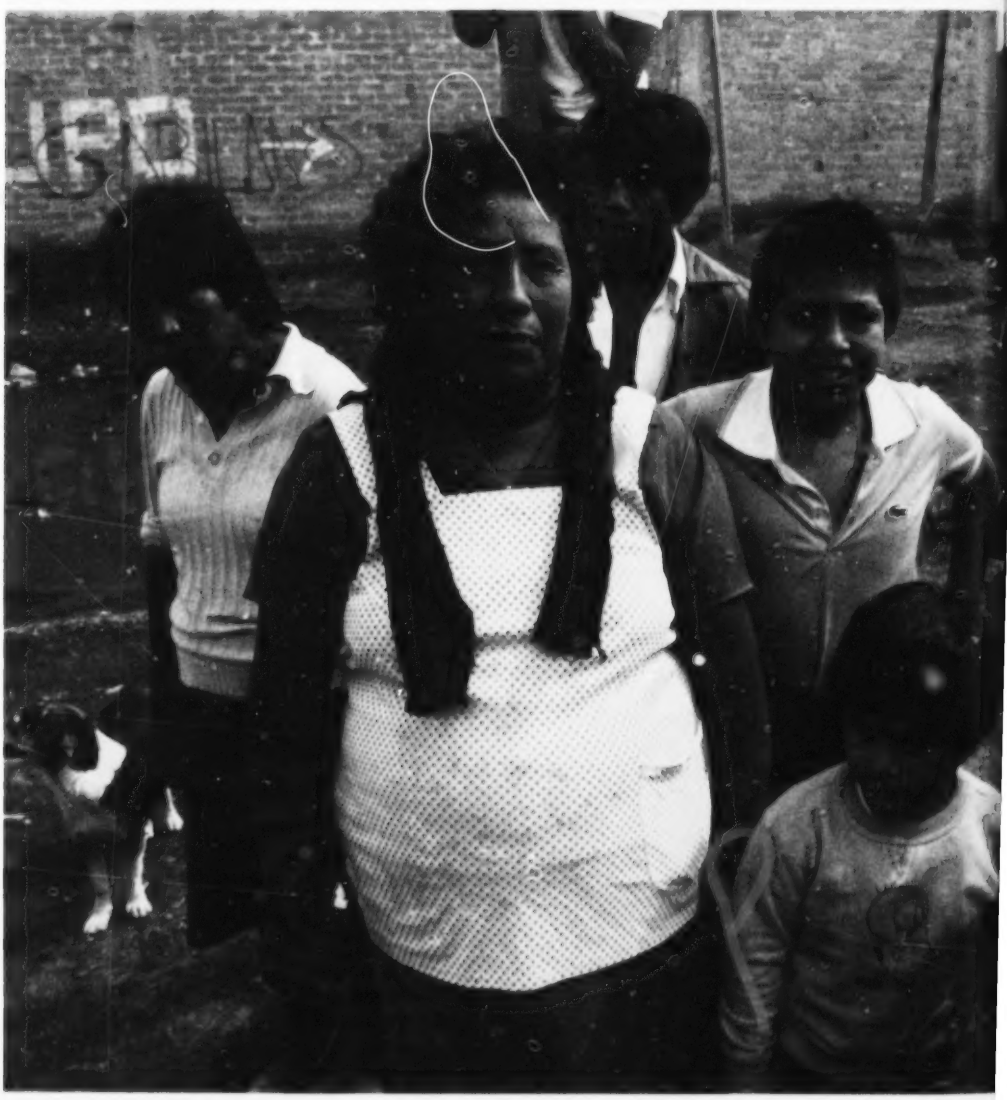
I just want two kids. We haven't really thought what we'd do if we had two girls, but if the next one is another girl, I think I'd still just want two.

JORGE

I'm 24 and work six days a week at a car wash in Mexico City. Including tips, I make about three times the minimum wage. I was born in Oaxaca, but when I was five my family left and we all moved to Vera Cruz. After that we came here.

First we lived in Mexico City, and then about 10 years ago we moved out to this neighbourhood. We still live with my parents, but we've got a side room just for ourselves and the baby. In the house

Residents of the Valle de Chalco, where evaluators have been using patient testimonials to help test the effectiveness of family planning services.



"If my doctor says my wife can't use any [birth control] methods because of her health, so it's up to me to use condoms, I guess I'd do it."—Jorge, age 24, patient at family planning clinic

we're 10 altogether, living in four rooms. I was planning to buy an empty lot nearby and build our own house, but I can't right now because I hurt my back and can't do heavy work.

My parents agree we should have just two kids. They say they've suffered too much with all my brothers and sisters. Not because we're trouble, just that we're too many. Six kids were a lot for them. There's always enough time and space for that many, but you've also got to think about their future. You can have 10 kids if you want, but if you don't have enough to give each one, they're going to suffer. They need more than just money. You need to give them their own things, too.

If the doctor says my wife can't use any methods because of her health and so it's up to me to use condoms, I guess I'd do it. It's just a question of a lot of practice, because they say if you don't have any experience it's dangerous—dangerous in the sense they don't do any good. I guess I'd learn if I had to. No one I know uses them even before they get married and they're with women on the street. They're easy enough to buy anywhere you try, though.

DAVID MELODY

LUCINA

I'm 43 years and I've got eight children. I was 15 when I got married and 17 when I had my first. My youngest one is 13-years-old now. Just after he was born is when I decided to control. My husband drank a lot and had a lot of other women. I couldn't handle him, much less the eight kids all by myself. So I had no choice but to do something.

I started drinking after my husband did, and it got worse after all the kids. I went finally to Alcoholics Anonymous,

"My daughter who just finished high school told me I was sick all the time because I had too many [children]. That's what they learn in school these days. They know more than I did!"—Lucina, age 43, patient at family planning clinic

Author Louis Werner (left) and photographer David Melody (right) visit a family in the Valle de Chalco, a community of 200,000 near Mexico City that still lacks many essential services.

DAVID MELODY

and it's been a year and seven months since my last drink. We talk openly about our problems during the meetings. I always talk about my husband and my kids.

I was sick in bed a lot back when we were still living in Oaxaca. One day I was so bad off, my sister-in-law sent a doctor to see me. He'd come all the way from Mexico City just to buy some fighting cocks. He took one look at me and asked why I had wanted so many kids if I was in such poor shape. The way we were living, we couldn't even begin to feed or educate them. All I could give them was love. But with all our other problems, what good was just that?

So this doctor said I should come to Mexico City to get an IUD. I had to go all that way because that's where he came from, and my husband said he was the only doctor he'd let me see. He didn't want any more kids either, but he wouldn't let me go to anyone else. So I took the bus for five hours to get an IUD.

But after a time I began to bleed, and when I went back to get it checked, the doctor said my husband should get an operation. But he didn't want to, so I said I'd get the operation myself because I didn't want more kids. The same doctor that put in my IUD gave me the operation. It only cost my husband $10 [15,000 pesos in 1980] because the rest was paid out of his social security. I was in the hospital for four days and then I went back to Oaxaca, but right away we all decided to move to Mexico City for good.

I came to the doctor because of the pain I've got in my stomach. I've had it ever since I had the operation. It's not strong all the time, but when I've got it sometimes I can't do anything. The doctor said I had amoebas in my stomach, and they don't have anything to do with my operation. He said he could cure me with some medicine, but the lab tests still show them in my stomach. Maybe it's because I don't take the medicine the way he explained, or because I'm stupid and don't do what I'm told. He said if I want to get well I've got to try harder to follow the treatments.

If I could live my life again? I don't regret having all the kids that I did. I'm realizing only now what life really means to me. Before I was pretty ignorant. Now that they're grown, sure they still give me trouble, but at least I've got them. Today, though, I'd say women should have less, because too many can run you down. My daughter who just finished high school told me I was sick all the time because I had too many. That's what they learn these days in school. They know more than I did!□

Pulse

Sri Lanka: Population and development strategies for the twenty-first century

The Democratic Socialist Republic of Sri Lanka is an island in the Indian Ocean with a land area of 65,000 square kilometres and a population density of about 250 persons per square kilometre.

The population according to the 1981 census was 14.9 million, and is currently estimated at 17 million. The rate of growth of the population was at its highest between 1946 and 1953. The average annual growth rate during that period was 2.8 per cent while it had declined to about 1.7 per cent from 1971 to 1981. Since 1981 the growth rate had declined gradually and was reported at 1.2 per cent in 1988. The natural increase for that year was estimated at 1.5 per cent with a crude birth rate of 20.7 per 1,000 and a crude death rate of 5.8 per 1,000. The net out migration of 3.0 per 1,000 counts for the difference between the growth rate and the rate of natural increase. As a result of past high birth rates, Sri Lanka has a relatively young population. Nearly 50 per cent of Sri Lankans living today have been born after 1965.

Even if the present total fertility rate (TFR), estimated at 2.6, were to decline to 2.1 in the year 2000, the population of Sri Lanka would continue to grow to 19 million by the end of this century. The reason for this is the past high growth rates, as a result of which the number of married women in the reproductive ages will increase from 2.6 million in 1990 to 2.8 in 2000.

Seventy-two per cent of the population lives in rural areas and more than half the population is concentrated in the districts of the south-western part of the island. The country has a high literacy rate of 87 per cent. The female literacy rate increased from 44 per cent in 1946 to 83 per cent in 1981.

Political commitment to population control

Since independence in 1948, successive governments have recognized the implications of population growth for economic development and the quality of life of the people, and have expressed concern about population growth in Sri Lanka. Different population policies

and programmes have been implemented and have achieved varying degrees of success.

Sri Lanka's population policy

Contraceptive prevalence increased from 34 per cent in 1975 to 62 per cent in 1987. The use of modern contraceptive methods increased from 19 to 41 per cent during the same period. This increase has been mainly due to an increase in use of sterilization. The use of temporary modern methods showed only a slight change, from 9 to 11 per cent. The use of traditional methods increased from 13 per cent in 1975 to 21 per cent in 1981.

It is generally agreed from both a demographic and programme standpoint that, while current levels of sterilization need to be maintained, any further fertility declines will have to be made mainly through the promotion and adoption of modern temporary contraceptive methods and increasing the efficacy of traditional spacing methods. The use of these methods along with the spacing of children concept will be promoted among younger eligible couples.

Therefore the policy of the government is to place greater emphasis on modern spacing methods with a view of reaching a 57 per cent contraceptive prevalence rate of modern methods and an overall rate of 72 per cent by the year 2000. This will bring Sri Lanka to its goal of achieving replacement fertility by the end of this decade.

Population prospects in the twenty-first century

If replacement fertility (total fertility rate of 2.1) is reached in the year 2000, the population will continue to grow to reach 19 million in the year 2000 and eventually stabilize around 23 million in 2040. The population in the age group 5 to 14, which corresponds to the school-age population, will gradually decrease from 3.7 million in 1990 to 3.4 million in 2000 and to 2.9 million in 2040. Children aged 5 years will decline from 360,000 in 1990 to 285,000 in 2040 and thereafter remain constant. The proportion of population under 15 years of age will decline from 32 per cent in 1990 to 27 per cent in the year 2000 and to about 18 per cent in 2040. On the other hand the proportion of population aged 65 and over will increase from 5 per cent in 1990 to 6 per cent in 2000 and 15 per cent in 2040.

Sri Lanka is expected to complete its demographic transition by the end of this decade. Then the level of contraceptive use will rise to about 72 per cent of currently married women. Thus population strategies would entail not only maintenance of the high level of prevalence but also improvement of the quality of services.

Relatively little attention has been given to the long-term consequences of successful birth control programmes and improved life expectancy at birth, namely, the increasing relative weight of the elderly in the population and growing numbers of persons surviving to reach old age. The growing weight of the elderly in the population must be considered in overall socio-economic planning and manpower availability, allocation of financial resources to assure income security to elderly dependants, change in patterns of consumption and investment. Such forward planning is particularly crucial in developing countries like Sri Lanka which will have to adjust to the transition from a young to an aging population structure much faster than did developed countries in the past.

In Sri Lanka the elderly population, aged 60 years and over, will increase from 1.3 million in 1990 to 1.7 million in 2000 and to 3.3 million in the year 2020. The proportion of those aged 60 and over to the total population will increase from 7.7 per cent in 1990 to about 15 per cent in 2020, which will be the highest proportion of elderly in the South Asian region.

"Sri Lanka: Population and Development Strategies for the 21st Century", paper by Neville Fernando, M.P., presented at the Sixth Asian Park Veterans Meeting on Population and Development (Jakarta, 22-23 March 1990)

Community-based family planning in Africa

Africa has the highest population growth, fertility, maternal and infant mortality rates in the world. This trend places great economic and social constraints on national development.

For the past few years, African governments have become more concerned about rapid population growth, [and its] effect on overall social and economic development and, above all, on the health of women and children. Family planning has been identified as a low-cost preventive health, social and population strategy. [It] indirectly reduces infant and maternal morbidity and mortality

Now, a major challenge for governments is to find ways to make family planning not only acceptable but available to people in communities.

Community-based health care has been widely accepted as a good strategy to reach the masses, especially at the grassroots. It brings family planning closer to the people and makes services available where they are needed, frequently in circumstances where clients have no other source of services. This approach to delivery has improved access to family planning by removing some of the geographical, financial, bureaucratic, cultural and communication barriers that limit attendance in conventional clinics, where only doctors and nurses provide services.

Pilot projects and operation research strategies have been used to assist countries in determining the approach that best suits their needs and resources. Within the last 19 years, over 90 community-based delivery (CBD) programmes have been undertaken in at least 57 countries.

In Nigeria, for example, with the support of the U.S. Agency for International Development, the Fertility Research Unit of the University College Hospital collaborated with Columbia University's Centre for Population and Family Health to develop and test a safe, effective, low-cost and broadly replicable CBD model in Oyo State. The model adapts to social, cultural, political and economic conditions to provide door-to-door delivery of basic integrated maternal/child health and family planning services in rural areas. The project rapidly and significantly increased the health services rendered to the rural population, as was indicated by comparing the results of the post-intervention survey with the baseline survey.

The Fertility Research Unit also tested an urban market-based, low-cost approach to contraceptive distribution. The market-based programme was built on the knowledge gained in the rural CBD programme. But it added the co-operation of a non-governmental organization, the Committee on Women and Development, Ibadan, to test a social marketing approach. Training

and supervision provided a viable link to the health infrastructure. As in most of sub-Saharan Africa, the markets in Ibadan, the capital of Oyo State, are central to community life. They hence offer a strategy for reaching hundreds of thousands of people daily for education, information, motivation, distribution of contraceptives and treatment of minor ailments.

Very positive and practical benefits have resulted from the CBD pilot projects. The integrated approach made initiation of the topic of child spacing acceptable in both an urban and rural setting. It paved the way for associating family planning with the much appreciated basic health services being provided in villages, hamlets and markets. The CBD approach, designed in line with government policy, can be and is being replicated universally in Nigeria. Both the urban and rural CBD projects have been taken over by the government and serve as models.

The participation of communities, especially in policy, provides family planning programmes with the opportunity to expand their outreach while tapping community resources and energies. It also enables them to open two-way communication channels with people. This approach has proven to be an effective means of promoting family planning while contributing to broader community development goals and to achieving health for all by the year 2000.

Involvement of the private sector in promoting family planning has been adopted in a number of developing countries as a scheme for attracting people who are reluctant to patronize health facilities. Through social marketing, the private sector sells contraceptives to a wide variety of people in every possible political, social and economic context. The approach works because there are no delays in service delivery. Customers don't have to see a doctor or nurse for service. Contraceptives are easily available and affordable. To be successful, however, the seller has to be convincing, so the goods are displayed in such a way that people are motivated to buy them.

Social marketing needs to be monitored by the government to enable people to pay for commodities at subsidized rates and to make them affordable, especially to the low-income earner. To ensure availability of commodities at all times, government support is of great importance in removing procedural constraints.

Unfortunately, even though most family planning programmes are designed for women and often used by women, it is without any responsive input by women. Community-based delivery represents a dramatic advance in the endeavour to provide disadvantaged populations with control over their lives, to save the lives of women and children and to improve their quality of life. For any effective programme, however, the involvement of the masses, and especially of women, in identifying needs and strategies, is vital.

From "Family Planning at the Community Level: A Message from African Women", a speech by Grace Gbur Delano, Project Co-Director and Assistant Chief Nursing Officer of the Department of Obstetrics and Gynecology in the College of Medicine, University College Hospital, Ibadan, Nigeria. Fourth annual lecture of the Centre for Development and Population Activities (CEDPA)

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